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THE CHIRURGICAL WORKS OF PERCIVALL POTT, F.R.S. AND SURGEON to St. BARTHOLOMEW's HOSPITAL.

A certis potius et exploratis petendum esse præsidium; id est, his quæ Experientia in ipsis curationibus docuerit; sicut in cæteris omnibus artibus: nam ne Agricolam quidem aut Gubernatorem Disputatione, sed Usu fieri.

A. CORN. CELSUS.

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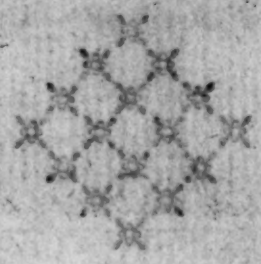

LONDON to St. BARTHOLOMEW's Hospital.

AND

PERCIVALL POTT, F.R.S.

OF

CHIRURGICAL WORKS.

IN

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OBSERVATIONS

ON THE

NATURE and CONSEQUENCES

OF THOSE

INJURIES

TO WHICH

The HEAD is liable from External Violence.

Nullum capitis vulnus contemnendum.

HIPPOCRATES.

THE HEAD is liable from External Violence

TO WHICH

ARE ADDED

OBSERVATIONS

ON THE

NATURE and CONSEQUENCES

OF THOSE Violence

OBSERVATIONS

ON THE

NATURE and CONSEQUENCES

OF THOSE

INJURIES to which the HEAD is liable from external Violence.

SECT. I.

Wounds of the Scalp.

PREVIOUS to an account of ſuch wounds and injuries of the head, as intereſt the ſkull, the brain, and its membranes, it may not be amiſs to take ſome ſmall notice of thoſe to which the ſcalp is liable.

This, though it be called the common tegument of the head, yet, from the variety of parts of which it is compoſed, from their ſtructure, connexions, and uſes, injuries done to it, by external violence, become of much more conſequence, than the ſame kind of ills can prove, when inflicted on the common teguments of the reſt of the body.

The

The covering, called the ſcalp, conſiſts of the cutis, the membrana adipoſa, or cellularis, the expanded tendons of the frontal, occipital, and temporal muſcles, (forming a kind of aponeuroſis) and the membrane which immediately covers the bones of the ſkull, called therefore the pericranium.

This variety of parts, upon the infliction of wounds, blows, &c. frequently occaſions a variety of ſymptoms; which ſymptoms ought by practitioners to be carefully and properly diſtinguiſhed from each other; not only becauſe they often ariſe from the diſtinct, and particular nature, of the part injured, but becauſe they generally point out the moſt effectual means of relief. If to theſe conſiderations we add another, no leſs true, and important, (viz.) that there is, and muſt be a conſtant communication, by means of blood-veſſels, between all the parts without, and within the head, it will appear, that injuries done to this part, though ſeemingly, and at firſt ſight, ſlight and trivial, may ſometimes prove of the greateſt conſequence.

I will not waſte the reader's time, by entering into a detail of the method of treating common inciſed wounds, but proceed immediately to thoſe which, (though the miſchief is originally confined to the mere ſcalp,) yet are frequently very terrible to behold, are often attended with alarming ſymptoms, and ſometimes with danger. Theſe are what are called lacerated wounds, and thoſe made by puncture. The former may be reduced to two kinds, (viz.) thoſe in which the ſcalp, though torn, or unequally divided, ſtill keeps its natural ſituation, and is not ſtript or ſeparated from the cranium, to any conſiderable diſtance, beyond the breadth of the wound; and thoſe, in which it is conſiderably detached from the parts it ought to cover.

The firſt of theſe, if ſimple, and not combined with the ſymptoms or appearances of any other miſchief, do not require any particular, or different treatment, from what the ſame kind of wounds require on all other parts; but the latter, (thoſe in which the ſcalp is ſepa-

rated,

rated, and detached from the parts it ought to cover,) are not only, by the different methods in which they may be treated, frequently capable of being cured, with a conſiderable deal more or leſs eaſe and expedition, but are alſo ſometimes a matter of great conſequence to the health and well-being of the patient. Both writers and practitioners differ much, in their advice and conduct on this ſubject. With ſome it is a practice, immediately to remove ſuch portion of the ſcalp as is fairly and perfectly detached from the parts underneath; with others, to attempt its preſervation.

Each of theſe opinions can be conſidered in a general ſenſe only, not as applicable to every individual caſe without diſtinction; and taken in ſuch general conſideration, they cannot be both right. It may therefore be worth while to enquire, what reaſons each party has to give for its opinion and conduct.

They who adviſe the removal, affirm, that when a large portion of the ſcalp has been perfectly and totally ſeparated from the parts it ought to cover, and that for ſome conſiderable ſpace, it will not again coaleſce or unite with ſuch parts; and therefore that an attempt to procure ſuch union, by replacing the ſeparated piece, will only protract the time of cure, by furniſhing a lodgment for matter, and ſloughs, which matter and ſloughs muſt prevent the thing intended. That in caſe of large wounds, or of thoſe produced by great force, as we cannot by any means be abſolutely certain, that no miſchief is done to the parts under the cranium, the replacing the lacerated ſcalp, may not only prevent our immediate enquiry into the nature of ſuch miſchief, but may conceal, and hide (at leaſt for a time) ſuch future appearances as might furniſh indications for a ſurgeon's conduct.

They who adviſe the preſervation of the ſeparated ſcalp, * do it upon a ſuppoſition, that it will in general unite again; that if it does, the

* I preſume I need not obſerve, that when I ſay *ſeparated*, I mean only with regard to the inferior ſurface of ſuch piece, and that it is ſtill contiguous with ſome part of the ſkin.

the patient may thereby be ſpared a great deal of pain, ſave much time, and ſuſtain much leſs deformity; that with regard to the immediate enquiry into the ſtate of the cranium, it may be made before the ſcalp is replaced; that if there be no preſent ſymptoms which indicate injury done to the parts underneath, it would be abſurd to act merely upon the preſumption, that there may be ſome in future; that it will be more proper and vindicable, to do what is right at firſt, or according to the preſent circumſtance, and to attend to what *may* happen or occur hereafter, when ſuch occurrences have happened; and that the formation of matter, and ſloughs, under the detached and replaced portion, will not, in general, under proper management, prevent its reunion.

It is to be preſumed, that every practitioner wiſhes to cure his patients as ſoon as he can, by the leaſt painful means, and in ſuch manner as ſhall be productive of the leaſt poſſible deformity or defect; taking care at the ſame time, not to be inattentive to any evil, which may ariſe, nor to omit, or neglect doing whatever may be neceſſary during ſuch cure.

Upon this principle, I make no ſcruple of declaring it as my opinion, that the preſervation of the ſcalp ought always to be attempted, unleſs it be ſo torn as to be abſolutely ſpoiled, or there are manifeſt preſent ſymptoms of other miſchief. This kind of wound is ſometimes very terrible to look at, and they who have not been accuſtomed to ſee it, may be inclined to think there is no remedy but exciſion: but I have ſo often made the experiment of endeavouring to preſerve the torn piece, and have ſo often ſucceeded, that I would recommend it as a thing always to be attempted, even tho' a part of the cranium ſhould be perfectly bare, unleſs the two circumſtances already mentioned render it improper or impracticable. The removal of it neceſſarily produces a larger ſore, which muſt require a good deal of time

to heal, and muſt leave a conſiderable deformity; the preſervation of it prevents both.

Therefore when ſuch caſe occurs, let the ſurgeon be particularly careful to examine, whether there are any appearances, or ſymptoms, of any other kind of miſchief beſide what the ſcalp has ſuſtained, and if there be neither, let him make the torn piece clean from all dirt, or foreign bodies, and reſtore it quickly, and as perfectly as he can, to its natural ſituation.

The manner in which it is to be there maintained, muſt a good deal depend upon the particular circumſtances of each individual caſe, and therefore muſt be left to the ſurgeon, who will make uſe of plaſter, bandage, and ſuture, together or ſeparately, as he ſhall find them moſt convenient, and beſt fitted to the purpoſe.

I am aware that the very mention of a ſuture in a wound of the ſcalp, particularly a lacerated one, will ſtartle ſome of my readers, who have been taught that it is always wrong in both; I know that this is the general doctrine, but I know alſo, that although it be ſometimes true, yet if it be implicitly adhered to, it will prevent a practitioner now and then from receiving a very uſeful aſſiſtance. A ſtitch, made with a ſlip-knot, will ſometimes, hold the divided parts in ſuch ſituation, as will greatly expedite a cure, in many caſes a very ſhort time will anſwer the end, and the thread may be removed as ſoon as ever the purpoſe is accompliſhed, or the ſuture becomes either improper or uſeleſs.

In ſome caſes this will be all that is required; the looſened ſcalp will unite with the parts from which it was torn and ſeparated, and there will be no other ſore, than what ariſes from the impracticability of bringing the lips of the wound into ſmooth and immediate contact, the ſcar of which ſore muſt be ſmall in proportion.

On the other hand, it ſometimes happens that ſuch perfect re-union is not to be obtained, in which caſe matter will be formed and collected in thoſe places, where the parts do not coaleſce, but this does not neceſſarily make any difference, either in the general intention, or in the event; this matter may eaſily be diſcharged, by one or two ſmall openings made with a lancet, the head will ſtill preſerve its natural covering; and the cure will be very little retarded by a few ſmall abſceſſes.

I muſt deſire not to be miſunderſtood: I do not mean to ſay, that it muſt be always, and invariably right, to return the looſened ſcalp, and to endeavour to procure its immediate re-union, or that ſuch attempt will always ſucceed; I only mean to ſignify, that it is my opinion, (and that founded on experience) that the mere ſeparation or detachment of the ſcalp, to however large an extent, is not a good, and ſufficient reaſon, for cutting off any part of it in caſes where no other miſchief ſeems to have been done, in which the cranium is uninjured, and the parts within it unhurt; and, that the attempt to procure a re-union with the parts from which it was ſeparated, tho' it will ſometimes fail, yet will moſt frequently ſucceed, and is always worth making, as ſuch experiment, properly made, can never be attended with any real inconveniences.

In ſome caſes, the whole ſeparated piece will (as I have ſaid before) unite perfectly, and give little or no trouble, eſpecially in young, and healthy perſons; in ſome, the union will take place in ſome parts, and not in others; and conſequently matter will be formed, and require to be diſcharged, perhaps at ſeveral different points; and in ſome particular caſes, circumſtances, and habits, there will be no union at all, the torn cellular membrane, or the naked aponeuroſis, will inflame, and become ſloughy, a conſiderable quantity of matter will be collected,

collected, and perhaps the cranium will be denuded; but even in this ſtate of things, which does not very often happen, where proper care has been taken, and is almoſt the worſt which can happen in the caſe of mere, ſimple laceration, and detachment, I ſay, even in this, if the ſurgeon will not be too ſoon, nor too much alarmed, nor in a hurry to cut, he will often find the cure much more feaſible than he may at firſt imagine: let him take care to keep the inflammation under by proper means, let him have patience till the matter is fairly and fully formed, and the ſloughs perfectly ſeparated, and when this is accompliſhed, let him make a proper number of dependant openings for the diſcharge of them, and let him by bandage, and other proper management, keep the parts in conſtant contact with each other, and he will often find, that although he was foiled in his firſt intention of procuring immediate union, yet he will frequently ſucceed in this his ſecond; he will ſtill ſave the ſcalp, ſhorten the cure, and prevent the great deformity ariſing, (particularly to women) not only from the ſcar, but from the total loſs of hair.

I have ſaid, that this union may often be procured, even tho' the cranium ſhould have been perfectly denuded by the accident, and it is true, not only tho' it ſhould have been ſtript of its pericranium at firſt, but even if that pericranium ſhould have become ſloughy and caſt off, as I have often ſeen.

Exfoliation from a cranium laid bare by external violence, and to which no other injury has been done than merely ſtripping it of its covering, is a circumſtance which would not ſo often happen, if it was not taken for granted that it muſt be, and the bone treated according to ſuch expectation; the ſoft open texture of the bones of children, and young people, will frequently furniſh an incarnation, which will cover their ſurface, and render exfoliation quite unneceſſary; and even in thoſe of mature age, and in whom the bones are ſtill harder, exfo-

liation is full as often the effect of art, as the intention of nature, and produced by a method of dreſſing, calculated to accompliſh ſuch end, under a ſuppoſition of its being neceſſary. Sometimes indeed it happens, that a ſmall ſcale will neceſſarily ſeparate, and the ſore cannot be perfectly healed till ſuch ſeparation has been made; but this kind of exfoliation will be very ſmall and thin, in proportion to that produced by art, that is, that produced by dreſſing the ſurface of the bare bone with ſpirituous tinctures, &c. and when a wound on the head, with a ſound uninjured bone, denuded by accident, ſhews a diſpoſition to heal without exfoliation, it never can be right to counteract nature, and oblige her to do that ſhe is not inclined to, and which ſhe would accompliſh her purpoſe better without doing.

If the ſcalp be detached by ſuch means, or with ſuch force of inſtrument, that the ſkull, or parts within it have ſuffered, then the immediate union of the ſkin becomes impracticable, and it would be highly injudicious to attempt it; our attention then muſt be paid to the greater evil, it then becomes another kind of caſe, and all that need be ſaid of it in this place is, that although ſuch miſchief does generally require the removal of ſome part, yet even in this ſituation, no more of it ſhould be cut off than what will be neceſſary for the detection, and proper treatment of ſuch miſchief. In ſhort, whether conſidered as ſkin, or as the ſeat of the hair, it ought never to be removed wantonly, or without abſolute neceſſity.

Small wounds, that is, ſuch as are made by inſtruments, or bodies which pierce, or puncture, rather than cut, are in general more apt to become inflamed, and to give trouble, than thoſe which are larger; and in this part particularly, are ſometimes attended with ſo high inflammation, and with ſuch ſymptoms, as alarm both patient and ſurgeon.

The

The parts capable of being hurt by ſuch kind of wound, are the ſkin, the tela cellulosa, the expanded tendons of the muſcles of the ſcalp, and the pericranium.

If the wound affects the cellular membrane only, and has not reached the aponeuroſis or pericranium, the inflammation, and tumour, affect the whole head, and face, the ſkin of which wears a yellowiſh caſt, and is ſometimes thick ſet with ſmall bliſters, containing the ſame coloured ſerum; it receives the impreſſion of the fingers, and becomes pale for a moment, but returns immediately to its inflamed colour; it is not very painful to the touch, and the eye-lids and ears are always comprehended in the tumefaction, the former of which are ſometimes ſo diſtended, as to be cloſed; a feveriſh heat, and thirſt, generally accompany it; the patient is reſtleſs, has a quick pulſe, and moſt commonly a nauſea, and inclination to vomit.

This accident generally happens to perſons of bilious habit, and is indeed an inflammation of the eryſipelatous kind; it is ſomewhat alarming to look at, but is not often attended with danger. The wound does indeed neither look well, nor yield a kindly diſcharge, while the fever continues, but ſtill it has nothing threatening in its appearance, none of that look which beſpeaks internal miſchief, the ſcalp continues to adhere firmly to the ſkull, and the patient does not complain of that tenſive pain, nor is afflicted with that fatiguing reſtleſſneſs which generally attends miſchief underneath the cranium.

Phlebotomy, lenient purges, and the uſe of the common febrifuge medicines, particularly thoſe of the neutral kind, generally remove it in a ſhort time. When the inflammation is gone off, it leaves on the ſkin a yellowiſh tint, and a dry ſcurf, which continue until perſpiration carries them away, and upon the diſappearance of the diſeaſe, the wound immediately recovers a healthy aſpect, and ſoon heals without any farther trouble.

Wounds and contuſions of the head, which affect the brain and its membranes, are alſo ſubject to an eryſipelatous kind of ſwelling and inflammation, but it is very different, both in its character and conſequences from the preceding.

In this (which is one of the effects of inflammation of the meninges), the febrile ſymptoms are much higher, the pulſe harder and more frequent, the anxiety and reſtleſſneſs extremely fatiguing, the pain in the head intenſe, and as this kind of appearance is, in theſe circumſtances, moſt frequently the immediate precurſor of matter forming between the ſkull and dura mater, it is generally attended with irregular ſhiverings, which are not followed by a critical ſweat, nor afford any relief to the patient. To which it may be added, that in the former caſe the eryſipelas generally appears within the firſt three or four days, whereas in the latter, it ſeldom comes on till ſeveral days after the accident, when the ſymptomatic fever is got to ſome height. In the ſimple eryſipelas, although the wound be crude, and undigeſted, yet it has no other mark of miſchief, the pericranium adheres firmly to the ſkull, and upon the ceſſation of the fever, all appearances become immediately favourable. In that which accompanies injury done to the parts underneath, the wound not only has a ſpongy, flaſhy, unhealthy aſpect, but the pericranium in its neighbourhood, ſeparates ſpontaneouſly from the bone, and quits all coheſion with it. In ſhort, one is an accident, proceeding from a bilious habit, and not indicating any miſchief beyond itſelf, the other is a ſymptom, or a part, of a diſeaſe, which is occaſioned by injury done to the membranes of the brain; one portends little or no ill to the patient, and almoſt always ends well, the other implies great hazard, and moſt commonly ends fatally. It is therefore hardly neceſſary to ſay, that it behoves every practitioner to be careful, in diſtinguiſhing them from each other.

If

If the wound be a ſmall one, and has paſſed thro' the tela celluloſa, to the aponeuroſis, and pericranium, it is ſometimes attended with very diſagreeable, and even very alarming ſymptoms, but which ariſe from a different cauſe, and are very diſtinguiſhable from what has been yet mentioned.

In this the inflamed ſcalp does not riſe into that degree of tumefaction, as in the eryſipelas, neither does it pit, or retain the impreſſion of the fingers of an examiner, it is of a deep red colour, unmixt with the yellow tint of the eryſipelas; it appears tenſe, and is extremely painful to the touch; as it is not an affection of the tela celluloſa, and as the ears and the eye-lids are not covered by the parts in which the wound is inflicted, they are ſeldom, if ever, comprehended in the tumor, though they may partake of the general inflammation of the ſkin; it is generally attended with acute pain in the head, and ſuch a degree of fever as prevents ſleep, and ſometimes brings on a delirium.

A patient in theſe circumſtances, will admit more free evacuations by phlebotomy, than one labouring under an eryſipelas, the uſe of warm fomentation is required in both, in order to keep the ſkin clean and perſpirable, but an emollient cataplaſm, which is generally forbid in the former, may in this latter caſe be uſed to great advantage.

When the ſymptoms are not very preſſing, nor the habit very inflammable, this method will prove ſufficient; but it ſometimes happens, that the ſcalp is ſo tenſe, the pain ſo great, and the ſymptomatic fever ſo high, that by waiting for the ſlow effect of ſuch means, the patient runs a riſque from the continuance of the fever, or elſe the injured aponeuroſis, and pericranium becoming ſloughy, produce an abſceſs, and render the caſe both tedious and troubleſome. A diviſion of the wounded part, by a ſimple inciſion down to the bone, about half an inch or an inch in length, will moſt commonly remove

all

all the bad ſymptoms, and, if it be done in time, will render every thing elſe unneceſſary.

The injuries to which the ſcalp is liable from contuſion, or the appearances produced in it by ſuch general cauſe, may for method-ſake be divided into two claſſes, viz. thoſe in which the miſchief is confined merely to the ſcalp; and thoſe in which other parts are intereſted.

The former, which only comes under our preſent conſideration, is not indeed of importance, conſidered abſtractedly. The tumor attending it is either very eaſily diſſipated, or the extravaſated blood cauſing it, is eaſily got rid of by a ſmall opening. I ſhould not therefore have thought it of ſuch conſequence, as to be worth mentioning in this place, had it not been for an accidental circumſtance, which ſometimes attends it, and renders it liable to be very much miſtaken.

When the ſcalp receives a very ſmart blow, it often happens that a quantity of extravaſated blood immediately forms a tumor, eaſily diſtinguiſhable from all others, and generally very eaſily cured. But it alſo ſometimes happens, that this kind of tumor produces, to the fingers of an unadviſed or inattentive examiner, a ſenſation, ſo like to that of a fracture, with depreſſion of the cranium, as may be eaſily miſtaken. Now, if, upon ſuch ſuppoſition, a ſurgeon immediately removes the tumid ſcalp, he may give his patient a great deal of unneceſſary pain, and for that reaſon run ſome riſque of his own character.

The touch is, in this caſe, ſo liable to deception, that recourſe ſhould always be had to other circumſtances and ſymptoms, before an opinion be given.

If a perſon, with ſuch tumor occaſioned by a blow, and attended with ſuch appearances, and feel, has any complaint, which ſeems to be the effect of preſſure made on the brain and nerves, or of any miſ-

chief

chief done to the parts within the cranium, the diviſion, or removal of the ſcalp in order to inquire into the ſtate of the ſkull, is right and neceſſary; but if there are no ſuch general ſymptoms, and the patient is in every reſpect perfectly well, the mere feel of ſomething like a fracture, will not authorize, or vindicate ſuch operation, ſince it will often be found, that ſuch ſenſation is a deception, and that when the extravaſated fluid is removed, or diſſipated, the cranium is perfectly ſound and uninjured.

The ſecond kind of tumor attending the contuſed ſcalp, viz. that which ariſes from injury done to the cranium, and parts within, does ſo abſolutely proceed from, and depend upon ſuch injury, as not to fall under our conſideration in this place at all, but will be conſidered at large when we come to ſpeak of the miſchiefs done to the ſkull and brain by colliſion, or contuſion.

From what has been ſaid it appears, that the ſcalp, taken in a general ſenſe, is, when wounded or bruiſed, liable to be affected with four kinds of tumor, each of which has a diſtinct cauſe, and requires, or permits, a different method of treatment.

The firſt does not imply any injury done to the parts within the ſkull, requires no operation, and almoſt always is cured by general remedies.

The ſecond, or that which is cauſed by the ſpontaneous ſeparation of the pericranium from the ſkull, in conſequence of internal miſchief, is not at firſt attended with very preſſing ſymptoms, but whoever has obſerved their progreſs, and attended to their event, muſt know what fatal, and frequently irreſiſtible evil, it is the forerunner of, nothing leſs than the inflammation, and putrefaction of the membranes of the brain, and the formation of matter between them and the ſkull; and that it is a caſe which, of all others, will leaſt admit delay.

The third, though it ſometimes gives way to free evacuation, and lenient external applications, yet is ſometimes alſo attended with ſymptoms, which are too preſſing to wait the effect of ſuch remedies, and is capable of being immediately relieved by a diviſion of the inflamed and irritated parts; whereas the ſame incision, made into the firſt kind of tumefaction, would moſt probably exaſperate the diſeaſe, and heighten the ſymptoms.

The fourth, conſiſting of extravaſated blood, ſeldom requires any chirurgic operation; time, and the uſe of the common diſcutient applications *, almoſt always diſſipate it; and it only becomes of conſequence, by the poſſibility of its being miſunderſtood and miſtreated.

* Among which I know of none equal to a ſolution of crude ſal ammon. in vinegar and water, or ſpt. vin.

SECT.

SECT. II.

Effects of Contuſion on the Dura Mater, and Parts within the Skull.

IN order to underſtand rightly, and to have a clear idea of this kind of injury, it is neceſſary to recollect, that the veſſels of the pericranium, thoſe of the diploe, or medullary ſubſtance between the two tables of ſome parts of the cranium, and thoſe of the dura mater within it, do all, conſtantly, and freely communicate with each other; and that this communication is carried on, by means of innumerable foramina, found, in all parts, of both ſurfaces of the ſkull, as well as at the ſutures; that upon the freedom of this communication, depends, the healthy, and ſound, ſtate of all the parts concerned in it; and, that from the interruption, or deſtruction, of this, proceed moſt of the ſymptoms attending violent contuſions of the head, extravaſations of fluid, between the cranium and dura mater, inflammations of the ſaid membrane, and ſimple undepreſſed fracture of the ſkull.

The pericranium is ſo firmly attached to the outer ſurface of the ſkull, as not to be ſeparable from it without conſiderable violence; and when ſuch violent ſeparation is made, in a living ſubject (eſpecially if young) the cranium is always ſeen to bleed freely, from an infinite number of ſmall foramina. The dura mater, which is a firm ſtrong membrane, is almoſt as intimately attached to the inſide of the ſkull, as the pericranium is to the outſide, and by the ſame means, viz. by

veſſels; and by theſe means a conſtant circulation, and communication are preſerved, and maintained, between the two membranes, and the bones dividing them. This, all the appearances, which attend the ſcalping a living perſon, or the ſeparation of the ſkull from the dura mater of a dead one, (eſpecially if ſuch perſon died apoplectic, or was hanged) prove beyond all doubt: in the former, the blood, will, (as I have already obſerved) be ſeen iſſuing from every point of the ſurface of the cranium, in the latter, not only a conſiderable degree of force will be found neceſſary to detach the ſawed bone from the ſubjacent membrane, but, when it is removed, a great number of bloody points will be ſeen all over the ſurface of the latter; which points, if wiped clean, do immediately become bloody again, being only the extremities of broken veſſels. Theſe veſſels are largeſt at, and about the ſutures, at which places the adheſion is the ſtrongeſt, and the hæmorrhage upon ſeparation the greateſt.

It has been thought by many, that the dura mater was attached to the ſkull, only at the ſutures, that in all other parts it was looſe, and unconnected with it, and, that it conſtantly enjoyed or performed an oſcillatory kind of motion, and was alternately elevated and depreſſed. This idea, and opinion, were borrowed from the appearance which the dura mater makes in a living ſubject, after a portion of the ſkull has been removed: but although it has been inculcated by writers of great eminence, yet it has no foundation in truth or nature, and has miſled many practitioners, in their opinions, not only of the ſtructure and diſpoſition of this membrane, but in their ideas of its diſeaſes.

The dura mater does on the internal ſurface of the bones of the cranium, the office of perioſteum, in the ſame manner as the pericranium does on the external; (at leaſt they have no other:) to this it is ſo firmly, and ſo generally attached, as to be incapable of any, even the ſmalleſt degree of motion. The alternate elevation, and ſubſi-

dence

dence of it, which are obſervable, when any portion of it is laid bare, are owing to a very different cauſe from any power in itſelf; neither is, nor can ever be performed, until a piece of the cranium has been forcibly taken away; and conſequently cannot poſſibly be natural, or neceſſary.

By blows, falls, and other ſhocks, ſome of the larger of thoſe veſſels which carry on this communication between the dura mater and the ſkull are broken, and a quantity of blood is ſhed upon the ſurface of that membrane. This is one ſpecies of bloody extravaſation, and indeed the only one which can be formed between the ſkull and dura mater. If the broken veſſels be few, and the quantity of blood which is ſhed be ſmall, the ſymptoms are generally ſlight, and by proper treatment diſappear *. If they are large, or numerous, or the quantity of extravaſated fluid conſiderable, the ſymptoms are generally urgent in proportion; but whether they be ſlight, or conſiderable, whether immediately alarming or not, they are always, and uniformly, ſuch as indicate preſſure made on the brain and nerves, viz. ſtupidity, drowſineſs, diminution, or loſs of ſenſe, ſpeech, and voluntary motion.

This every practitioner knows to be one frequent conſequence of blows on the head. But it alſo often happens, from the ſame kind of violence, that ſome of the ſmall veſſels which carry on the circulation between the pericranium, ſkull, and dura mater, are ſo damaged, as not to be able, properly to execute that office, although there are none ſo broken, as to cauſe an actual effuſion of blood.

Smart,

* This muſt be ſuppoſed to be ſpoken in a general ſenſe; becauſe it is well known, that ſometimes a very ſmall quantity of extravaſated fluid will produce the moſt alarming and moſt preſſing ſymptoms; and that at other times a large quantity will occaſion none at all.

Smart, and ſevere ſtrokes, on the middle part of the bones, at a diſtance from the ſutures, are moſt frequently followed by this kind of miſchief; the coats of the ſmall veſſels, which ſuſtain the injury, inflame and become ſloughy, and, in conſequence of ſuch alteration in them, the pericranium ſeparates from the outſide of that part of the bone which received the blow, and the dura mater from the inſide, the latter of which membranes, ſoon after ſuch inflammation, becomes ſloughy alſo, and furniſhes matter, which matter being collected between the ſaid membrane and the cranium, and having no natural outlet, whereby to eſcape, or be diſcharged, brings on a train of very terrible ſymptoms, and is a very frequent cauſe of deſtruction.* The effect of this kind of violence is frequently confined to the veſſels connecting the dura mater to the cranium, in which caſe the matter is external to the ſaid membrane; but it ſometimes happens, that by the force either of the ſtroke or of the concuſſion, the veſſels which paſs between, and connect the two meninges, are injured in the ſame manner, in which caſe the matter formed in conſequence of ſuch violence, is found on the ſurface of the brain, or between the pia and dura mater, as well as on the ſurface of the latter; or perhaps in all theſe three ſituations at the ſame time.

The difference of this kind of diſeaſe, from either an extravaſation of blood, or a commotion of the medullary parts of the brain, is great and obvious. All the complaints produced by extravaſation, are, (as I have already ſaid) ſuch as proceed from preſſure, made on the brain.

* Comment le pericrane a-t-il pû ainſi ſe detacher de l'os dans le circonference du coup? ne ſeroit ce point par l'ebranlement ou le tremouſſement de toutes les parties integrantes du crane. Si c'eſt en conſequence d'un tremouſſement pareil que nombre de filets qui attachent le pericrane au crane ſe ſont detachés, par la même raiſon, pluſieurs des filets qui attachent la dure mére au crane ont dû ſe rompre auſſi: d'où s'en eſt ſuivi un eryſipéle, qu'occaſion ſuppuration, ou plutot pourriture. LE DRAN.

brain and nerves, and obſtruction to the circulation of the blood through the former; ſtupidity, loſs of ſenſe and voluntary motion, laborious and obſtructed pulſe, and reſpiration, &c. and, (which is of importance to remark,) if the effuſion be at all conſiderable, theſe ſymptoms appear immediately, or very ſoon after the accident.

The ſymptoms attending an inflamed, or ſloughy, ſtate of the membranes, in conſequence of external violence,* are very different; they are all of the febrile kind, and never, at firſt, imply any unnatural preſſure; ſuch are, pain in the head, reſtleſſneſs, want of ſleep, frequent and hard pulſe, hot and dry ſkin, flushed countenance, inflamed eyes, nauſea, vomiting, rigor; and toward the end convulſion, and delirium. And none of theſe appear at firſt, that is, immediately after the accident, ſeldom until ſome days are paſt. †

One ſet or claſs of ſymptoms are produced by an extravaſated fluid, making ſuch preſſure on the brain, and origin of the nerves, as to impair or aboliſh voluntary motion and the ſenſes; the other is cauſed by

* The difference between theſe two effects of external violence, was very well underſtood by Berengarius Carpenſis, a moſt excellent writer on this ſubject, who ſays, "Interdum etiam a contuſione non rumpitur aliqua vena, ſed rumpuntur ligamenta illa "duræ matris; a quibus reſudat aliquid; hiſce vero niſi ſuccuratur, accidunt ſæva ac"cidentia, & mors."

Paulus Ægineta has alſo very particularly diſtinguiſhed between that degree of contuſion, which affects only the outer table of the ſkull, and that which injures the dura mater. "Porro contuſionis hujus duæ exiſtunt differentiæ: vel enim calva per totam ipſius "craſſitiem contunditur; ut frequenter etiam cerebri membrana abſceſſu occupetur, "vel, &c."

† "Nulla autem harum contuſionum aſpectu dignoſci poteſt; qualis nempe, quan"tave ſit. Non protinus ab ictu malum ſe videndum præbet." HIPPOCRATES.

"Sed accidentia quæ ſequuntur ad prædictam contuſionem, *inter commiſſuras*, non "ſunt per contuſionem tantum; ſed ſunt per *putrefactionem panniculi læſi*, et cum venit "ad certam quantitatem determinatam incipit febris, et alia accidentia: & tandem ſe"quitur mors, niſi cito ſuccuratur."

JACOBUS BERENGARIUS CARPENSIS.

by the inflamed, or putrid ſtate of the membranes covering the brain, and ſeldom affects the organs of ſenſe, until the latter end of the diſeaſe, that is until a conſiderable quantity of matter is formed, which matter muſt preſs like any other fluid.

I am very ſenſible that it is a generally-received opinion, that blood ſhed from its veſſels, and remaining confined in one place, will become pus; and that the matter found on the ſurface of the dura mater, toward the end of theſe caſes, was originally extravaſated blood. I apprehend both theſe poſitions to be falſe. That pure blood, ſhed from its veſſels, by means of external violence, and kept from the air, will not turn to, or become matter, is (I think) proved inconteſtibly, by every day's experience, in many inſtances, in aneuriſms by puncture, in retained menſes, by imperforate vagina, and in all ecchymoſes. True pus cannot be made from blood merely, as may be known from the manner in which all abſceſſes are formed, and from every circumſtance attending ſuppuration; and that the matter, found on the ſurface of the dura mater, after great contuſions of the head, never was mere blood, I am as certain, as obſervation, and experience can make me.

Some of the French writers have indeed divided the ſymptoms of what they call a contuſion of the head, into two kinds, and have named them *primitive* or *original* ſymptoms, and *ſecondary* or *conſequential* ones: among the former, they rank immediate loſs of ſenſe, hæmorrhage, involuntary diſcharge of urine and fæces, great propenſity to ſleep, &c; among the latter they reckon fever, delirium, rigor, convulſion, &c. One kind they impute to the mere extravaſation of blood, the other to its putrefaction.

This account, though ingenious and ſpecious, is not founded on fact. It is true, that the two kinds of ſymptoms are very diſtinct from each other, as well in their nature, as in their time and manner of acceſs, and ſo far the remark is true; but from all the obſervation and

examination

examination which I have been able to make, both on the living and on the dead, they appear to me to proceed from very different cauſes. That both theſe kinds of ſymptoms do now and then concur in the ſame patient, is beyond all doubt; and that the caſe is thereby rendered compleX, and more difficult to be judged of; but this does not conſtantly happen, and even when it does, I cannot help thinking, that there are generally ſuch diſtinguiſhing characteriſtic marks of each, as may prove the truth of what I have aſſerted.

In order to explain my meaning as clearly as I can, I will conſider the inflammatory effect of contuſion by itſelf, and independent of every other complaint or injury, which may accidentally be joined with it.

If there be neither fiſſure nor fracture of the ſkull, nor extravaſation, nor commotion underneath it, and the ſcalp be neither conſiderably bruiſed, nor wounded, the miſchief is ſeldom diſcovered, or attended to for ſome few days. The firſt attack is generally by pain in the part which received the blow. This pain, though beginning in that point, is ſoon extended all over the head, and is attended with a languor, or dejection of ſtrength and ſpirits, which are ſoon followed by a nauſea, and inclination to vomit, a vertigo or giddineſs, a quick and hard pulſe, and an incapacity of ſleeping, at leaſt quietly. A day or two after this attack, if no means preventative of inflammation are uſed, the part ſtricken generally ſwells, and becomes puffy, and tender, but not painful, neither does the tumor riſe to any conſiderable height, or ſpread to any great extent; if this tumid part of the ſcalp be now divided, the pericranium will be found of a darkiſh hue, and either quite detached, or very eaſily ſeparable from the ſkull, between which and it, will be found a ſmall quantity of a dark-coloured ichor.

If the diſorder has made ſuch progreſs, that the pericranium is quite ſeparated and detached from the ſkull, the latter will even now be found to be ſomewhat altered in colour from a ſound, healthy bone. Of this alteration it is not very eaſy to convey an idea by words, but it is a very viſible one, and what ſome very able writers have noticed.*

From this time the ſymptoms generally advance more haſtily and more apparently, the fever increaſes, the ſkin becomes hotter, the pulſe quicker and harder, the ſleep more diſturbed, the anxiety and reſtleſſneſs more fatiguing, and to theſe are generally added irregular rigors, which are not followed by any critical ſweat, and which inſtead of relieving the patient, add conſiderably to his ſufferings. If the ſcalp has not been divided or removed, until the ſymptoms are thus far advanced, the alteration of the colour of the bone will be found to be more remarkable; it will be found to be whiter, and more dry, than a healthy one, or, as Fallopius has very juſtly obſerved, it will be found to be more like a dead bone; the ſanies, or fluid, between it and the pericranium will alſo, in this ſtate, be found to be more in quantity, and the ſaid membrane will have a more livid, diſeaſed aſpect.

In this ſtate of matters, if the dura mater be denuded, it will be found to be detached from the inſide of the cranium, to have loſt its bright ſilver hue, and to be, as it were, ſmeared over with a kind of mucus,

* Among theſe Fallopius particularly: "Inſpiciatis diligenter os detectum; quod os, "quando eſt in natura ſua, eſt coloris ſubrubri, non candidi prorſus, nec rubri prorſus, "ſed eſt veluti color miſtus ex albo declinans ad rubicundum, ut ſi multo lacte, aut alio "colore candido, poneres parum ſanguinis vel alterius rei rubræ. Sed ſi videritis inæ-"qualitatem coloris in ipſo oſſe detecto, ita ut adſint veluti puncta coloris albi, et aridi "oſſis, quæ aridæ particulæ aliquando majores ſunt, aliquando minores, &c. ſciatis "quod os ſit contuſum." FALLOPIUS.

mucus, or with matter, but not with blood. Every hour after this period, all the ſymptoms are exaſperated, and advance with haſty ſtrides: the head-ach and thirſt become more intenſe, the ſtrength decreaſes, the rigors are more frequent, and at laſt convulſive motions, attended in ſome with delirium, in others with paralyſis, or comatoſe ſtupidity, finiſh the tragedy.*

If the ſcalp has not been divided, or removed 'till this point of time, and it be done now, a very offenſive diſcoloured kind of fluid will be found lying on the bare cranium, whoſe appearance will be ſtill more unlike to the healthy natural one; if the bone be now perforated, matter will be found between it and the dura mater, generally in conſiderable quantity, but different in different caſes and circumſtances. Sometimes it will be in great abundance, and diffuſed over a very

 large

* The whole proceſs of this very terrible diſeaſe is very accurately related, and very juſtly accounted for, by Theodoric.

" Si vero ob ictus vehementiam, dura mater ab oſſe fuerit ſeparata: vel aliquo modo " læſa (ſano & illæſo exiſtente cranio) ſic cognoſces: cum dolor capitis, & lenta fe- " bris, ſingulis diebus augmentantur, oculorum anguli, ac ſi ſpaſmari vellent, diſtor- " quentur; genæ rubent; (quod ſignum pravum eſt in qualibet capitis læſione;) pan- " nus balneatus ſuperpoſitus, citius deſiccatur; cutis etiam arida & ſicca; & ſi vulnus fu- " erit, & os diſco-opertum, color oſſis velocius alteratur; & propter negligentiam curæ, " ægro ſuperveniunt dolores, & febres, ſpaſmus, ſyncope, & permiſtio rationis."

THEODOR. de vuln. capit.

" Qua vero ſuper cerebri membranam ſit, utraqua ratione difficilis eſt: nam læſis " membranis apparet; ideo enim febris cum horrore, accedunt faciei rubor, & calor, " longe major quam pro febris modo; ſomnique tumultuoſi; oculi ſubpingues, & gra- " mioſi & rubentes." ARCHIGENES de ſanguine ſubtercurrente.

Petrus e Largelata, having very accurately related the ſymptoms attending the formation of matter under the cranium when fractured, ſays: " Si autem fractura ſit parva & " penetrans, tunc fiunt illa ſigna poſt aliquod tempus; eo quod tunc humiditates quæ " ſunt ſub cranio putrefiunt; & tunc fiunt illa accidentia:" And then very juſtly adds, " Secundo notes quod omnia illa accidentia poſſunt advenire ex percuſſione capitis, cra- " nio non fracto." PET. e LARGELATA.

large part of the membrane; and ſometimes the quantity will be leſs, and conſequently the ſpace which it occupies ſmaller. Sometimes it lies only on the exterior ſurface of the dura mater; and ſometimes it is between it and the pia mater, or alſo even on the ſurface of the brain, or within the ſubſtance of it.

The primary and original cauſe of all this, is the ſtroke upon the ſkull; by this the veſſels which ſhould carry on the circulation between the ſcalp, pericranium, ſkull, and meninges, are injured, and no means being uſed to prevent the impending miſchief, or ſuch as have been made uſe of proving ineffectual, the neceſſary and mutual communication between all theſe parts ceaſes, the pericraniûm is detached from the ſkull, by means of a ſanies diſcharged from the ruptured veſſels, the bone being (deprived of its due nouriſhment and circulation) loſes its healthy appearance, the dura mater (its attaching veſſels being deſtroyed, or rendered unfit for their office) ſeparates from the inſide of the cranium, inflames and ſuppurates.

Whoever will attend to the appearances which the parts concerned make in every ſtage of the diſeaſe, to the nature of the ſymptoms, the time of their acceſs, their progreſs, and moſt frequent event, will find them all eaſily and fairly deducible from the one cauſe, which has juſt been aſſigned, viz. the contuſion. As the inflammation, and ſeparation of the dura mater, is not an *immediate* conſequence of the violence, ſo neither are the ſymptoms immediate, ſeldom until ſome days have paſſed; the fever at firſt is ſlight, but increaſes gradually; as the membrane becomes more and more diſeaſed, all the febrile ſymptoms are heightened, the formation of matter occaſions rigors, frequent and irregular, until ſuch a quantity is collected, as brings on delirium, ſpaſm, and death.

Hitherto I have conſidered this diſeaſe, as unaccompanied by any other, not even by any external mark of injury, except perhaps a trifling

trifling bruiſe of the ſcalp; let us now ſuppoſe the ſcalp to be wounded at the time of the accident, by whatever gave the contuſion, or let us ſuppoſe, that the immediate ſymptoms having been alarming, a part of the ſcalp had been removed, in order to examine the ſkull; in ſhort, let the injury be conſidered as joined with a wounded ſcalp.

In this caſe, the wound will for ſome little time have the ſame appearance as a mere ſimple wound of this part, unattended with other miſchief, would have; it will, like that, at firſt diſcharge a thin ſanies, or gleet, and then begin to ſuppurate; it will digeſt, begin to incarn, and look perfectly well; but, after a few days, all theſe favourable appearances will vaniſh; the ſore will loſe its florid complexion, and granulated ſurface; will become pale, glaſſy, and flabby; inſtead of good matter, it will diſcharge only a thin diſcoloured ſanies; the lint with which it is dreſſed, inſtead of coming off eaſily, (as in a kindly ſuppurating ſore) will ſtick to all parts of it; and the pericranium, inſtead of adhering firmly to the bone, will ſeparate from it, all round, to ſome diſtance from the edges.*

This alteration in the face and circumſtances of the ſore, is produced merely by the diſeaſed ſtate of the parts underneath the ſkull; which is a circumſtance of great importance, in ſupport of the doctrine advanced; and is demonſtrably proved, by obſerving that this diſeaſed aſpect of the ſore, and this ſpontaneous ſeparation of the pericranium, are always confined to that part which covers the altered, or injured portion

* "Ubicunque autem ex vulnere intereundum ſit, neque poſſit homo ſanitatem reci-
"pere, neque ſervari, ex his intelligere convenit moriturum; et quod futurum eſt prog-
"noſticare. Hyeme plerumque, ante diem quartum, æſtate poſt ſeptimum, accedit fe-
"bris; quæ quum ſupervenit, vulnus reddit non ſui coloris & ſaniem modicam effundit,
"quodque ex ipſo inflammatum eſt emoritur, glutinoſum efficitur, & carnem ſale condi-
"tam repræſentat. Hippocrates de vuln. capit. Ulcus neque alitur neque pus maturat,
"& ſordidum fit." ARCHIGENES.

portion of the dura mater, and do not at all affect the reſt of the ſcalp; nay, if it has by accident been wounded in any other part, or a portion has been removed from any part where no injury has been done to the dura mater, no ſuch ſeparation will happen, the detachment above will always correſpond to that below, and be found no where elſe.

The firſt appearance of alteration in the wound immediately ſucceeds the febrile attack, and as the febrile ſymptoms increaſe, the ſore becomes worſe and worſe, that is, degenerates more and more from a healthy, kindly aſpect.

Through the whole time, from the firſt attack of the fever, to the laſt and fatal period, an attentive obſerver will remark the gradual alteration of the colour of the bone, if it be bare: at firſt it will be found to be whiter, and more dry, than the natural one, and as the ſymptoms increaſe *, and either matter is collected, or the dura mater becomes ſloughy, the bone inclines more and more to a kind of purulent hue, or whitiſh yellow; and it may alſo be worth while in this place to remark, that if the blow was on or very near to a future, and the ſubject young, the ſaid future will often ſeparate in ſuch manner as to let through it a looſe, painful, ill-natured fungus; at which time alſo

* "Tandem ſubpallidum vel album ſe oſtendit; ubi autem, jam purulentum eſt, aut "puſtulæ in lingua naſcuntur, laborans mente non conſtante conſumitur."

HIPPOCRATES de vuln. capitis.

"Quando ſanies eſt infra cranium, *ipſo non fracto*, cranium eſt male coloratum: æger "ſentit gravedinem in ea parte, qua eſt ſanies.—Eſt os ſanum, id eſt illud cui adhæret "dura mater, coloris albi, miſti rubedine.—Et quo ſeparatio eſt major, eo major oſſis "quantitas eſt mutata in colore.—Ultra vero colorem, cognoſcitur etiam eo quod ſiccius "ſit ſano.—Et ultra colorem & ſiccitatem, quando incipit iſta ſeparatio, incipiunt aliqua "ſæva accidentia; & febris, mentis alienatio, ſtupor, vigiliæ, &c. *Quia incipit ſupra* "*panniculum aggregari materia, quæ incipit corrumpi.*"

JACOBUS BERENGARIUS CARPENSIS.

alſo it is no uncommon thing for the patient's head and face to be attacked with an eryſipelas.*

I have ſaid, that in thoſe caſes, in which the ſcalp is very little injured by the bruiſe, and in which there is no wound, nor any immediately alarming ſymptoms, or appearances, that the patient feels little or no inconvenience, and ſeldom makes any complaint, until ſome few days are paſt. That at the end of this uncertain time, he is generally attacked by the ſymptoms already recited; that theſe are not preſſing at firſt, but that they ſoon increaſe to ſuch a degree, as to baffle all our art: from whence it will appear, that when this is the caſe, the patient frequently ſuffers from what ſeems at firſt to indicate his ſafety, and prevents ſuch attempts being made, and ſuch care from being taken of them, as might prove preventative of miſchief.

But if the integuments are ſo injured as to excite or claim our early regard, very uſeful information may from thence be collected, for whether the ſcalp be conſiderably bruiſed, or whether it be found neceſſary to divide it, for the diſcharge of extravaſated blood, or on account of worſe appearances, or more urgent ſymptoms, the ſtate of the pericranium may be thereby ſooner, and more certainly known: if in the place of ſuch bruiſe, the pericranium be found ſpontaneouſly detached from the ſkull, having a quantity of diſcoloured ſanies between them, under the tumid part, in the manner I have already mentioned, it may be regarded as a pretty certain indication, either that the dura mater is beginning to ſeparate in the ſame manner, or that if ſome preventative means be not immediately uſed, it will ſoon ſuffer; that is, it will inflame, ſeparate from the ſkull, and give room for a collection of matter between them. And with regard to the wound itſelf,

* "Suturas tempore curationis disjungi grave eſt." ARCHIGINES DE SIGNIS.

itſelf, whether it was made at the time of the accident, or afterward artificially, it is the ſame thing; if the alteration of its appearance be as I have related, if the edges of it ſpontaneouſly quit their adheſion to the bone, and the febrile ſymptoms are at the ſame time making their attack, theſe circumſtances will ſerve to convey the ſame information, and to prove the ſame thing.*

This particular effect of contuſion is frequently found to attend on fiſſures, and undepreſſed fractures of the cranium, as well as on extravaſations of fluid, in caſes where the bone is entire; and, on the other hand, all theſe do often happen without the concurrence of this individual miſchief. All this is matter of accident; but let the other circumſtances be what they may, the ſpontaneous ſeparation of the altered pericranium, in conſequence of a ſevere blow, is almoſt always followed by a ſuppuration between the cranium and dura mater; a circumſtance extremely well worth attending to in fiſſures and undepreſſed fractures of the ſkull, becauſe, it is from this circumſtance principally, that the bad ſymptoms, and the hazard, in ſuch caſes ariſe.

It is no very uncommon thing for a ſmart blow on the head to produce ſome immediate bad ſymptoms, which after a ſhort ſpace of time diſappear, and leave the patient perfectly well. A ſlight pain in the head, a little acceleration of pulſe, a vertigo and ſickneſs ſometimes immediately follow ſuch accident, but do not continue many hours, eſpecially, if any evacuation has been uſed. Theſe are not improbably owing to a ſlight commotion of the brain, which having ſuffered no material injury thereby, ſoon ceaſe. But if after an interval of ſome time, the ſame ſymptoms are renewed, if the patient, having been

* "Si dans une playe contuſe, où le crane eſt decouvert, on trouve à la circonference "de la playe, que le pericrane tienne peu à crane, ou en ſoit detaché, c'eſt une preuve "certaine que le crane a ſouffert, quoiqu'il ne ſoit fracturé; & s'il a ſouffert, on peut "etre aſſuré que la dure mere a ſouffert auſſi." LE DRAN.

been well, becomes again feveriſh, and reſtleſs, and that without any new cauſe, if he complains of being languid and uneaſy, ſleeps diſturbedly, loſes his appetite, has a hot ſkin, a hard quick pulſe, and a fluſhed, heated countenance, and neither irregularity of diet, nor accidental cold, have been productive of theſe, miſchief is moſt certainly impending, and that moſt probably under the ſkull.

If the ſymptoms of preſſure; ſuch as ſtupidity, loſs of ſenſe, voluntary motion, &c. appear ſome few days after the head has ſuffered injury from external miſchief, they do moſt probably imply an effuſion of a fluid ſomewhere; this effuſion may be in the ſubſtance of the brain, in its ventricles, between its membranes, or on the ſurface of the dura mater, and which of theſe is the real ſituation of ſuch extravaſation is a matter of great uncertainty, none of them being attended with any peculiar mark, or ſign that can be depended upon, as pointing it out preciſely; but the inflammation of the dura mater, and the formation of matter between it and the ſkull, in conſequence of contuſion, is generally indicated and preceded by one which I have hardly ever known to fail; I mean a puffy, circumſcribed, indolent tumor of the ſcalp, and a ſpontaneous ſeparation of the pericranium, from the ſkull under ſuch tumor*.

Theſe appearances therefore following a ſmart blow on the head, and attended with languor, pain, reſtleſsneſs, watching, quick pulſe,

* Lorſqu' on trouve le pericrane detaché, il n'y a point a heſiter a faire le trepan. Je ſçais que dans un cas pareil on n'auroit rien trouvé d'epanché ſous le crane, mais cependant l'operation faite de bonne heure auroit èté l'unique moyen de ſauver le malade s'il etoit poſſible, &c.

Si donc pluſieurs experiences nous apprennent que la dure mere devient malade en conſequence de la contuſion de l'os, & que ſa maladie degenere en pourriture, ce que a juſqu'ici emporte pluſieurs malades malgré de recours uſités, il faut abſolument trepanner de bonne heure. LE DRAN.

head-ach, and ſlight, irregular ſhiverings, do almoſt infallibly indicate an inflamed dura mater, and pus, either forming or formed between it and the cranium.*

By detachment of the pericranium, I do not mean every ſeparation of it from the bone which it ſhould cover. It may be, and often is, cut, torn, or ſcraped off, without any ſuch conſequence; but theſe ſeparations are violent, whereas, that which I mean is ſpontaneous, and is produced by the deſtruction of thoſe veſſels, by which it was connected with the ſkull, and by which the communication between it, and the internal parts was carried on; and therefore it is to be obſerved, that it is not the mere removal of that membrane which cauſes the bad ſymptoms, but it is the inflammation of the dura mater, of which inflammation, this ſpontaneous receſſion of the pericranium is an almoſt certain indication.

A falſe notion prevailed for many years, that the dura mater was not in general connected with the internal ſurface of the ſkull, except at the ſutures; and that in all other parts of it, ſuch a vacancy was left, as gave free room for what they called its pulſatory motion.‡ This

* Si ſtatim ab initio febris primo aut ſecundo appareat die, illa proculdubio cauſam agnoſcat perturbationem humorum, ac animi, quum vulnus incuteretur; ceſſante cauſa procatarctica; ac ubi ſe collegerit æger, deſinat illa febricula. Si vero primis diebus, nihil febrile, nec ullum ſymptoma ſentiat æger, ſeque in nullo diſcrimine exiſtimat, hunc ſi ſubito, die ſcilicet ſeptimo, vel quarto decimo (nihil licet in victu, rebuſve externis peccaverit æger) ac præter expectationem febris invadat, ſignificat latens aliquod, in cranio, cerebro, aut corpore vulnerati. PET. PAAW. in HIPPOCRAT.

‡ If we conſider how clearly and plainly many of the beſt antient writers deſcribe the intimate connexion between the ſkull and dura mater; and how perfectly well acquainted many of them were with its morbid ſeparation; we ſhall wonder how it came to be again forgot; but that it was is moſt certain. In Hippocrates, Paulus Ægineta, Rhazes, and others, are many paſſages which prove their knowledge of the natural ſtructure and adheſion of this membrane; and that ſome of the moſt eminent writers, and practitioners, had

This opinion, which was embraced by many, even of the moſt eminent practitioners, was the principal reaſon, why the bad effects of contuſions of the head were ſo little underſtood, and ſo groſsly miſtreated by them. They ſuppoſed that the vacuity between the dura mater and cranium was ſufficient, in general, to defend the former from all external violence, and the blood and matter, ſo often found between them, were thought to be depoſited in a ſpace naturally va-

 cant.

had forgot, or did not attend to it, the following quotations, ſelected from many more, may evince.

" Dura mater calvariæ connectitur ſuturarum ope ut penſile & erectum teneat cere-
" brum; tum etiam ut per ſuturas egreſſa pericranium procreat: ſpatium vero inter ſutu-
" ras recte natura liberum reliquit ut vacuum quoddam eſſet inter duram matrem & cal-
" variam; has nimirum ob cauſas; primo ne quicquam cerebri ſyſtolæ & diaſtolæ obſta-
" ret; ſecundo ne venæ, & arteriæ per externam duræ matris partem ſparſæ levi aliquo
" ictu in cranio facto rumperentur; poſtremo ut ruptis in dura matre venis, ſanguis non
" inter duram & piam matrem, ſed inter duram & cranium effunderetur, & cranio perfo-
" rato facilius extraheretur. Et hic eſt ordinarius naturæ ordo." GUL. FAB. HILD.

Felix Wirtz ſays, that the elevation of the cranium in ſlight impreſſions is needleſs, " Id enim motum cerebri, propter *vacuum* & diſtantiam quæ eſt inter meningem & cra-
" nium, minime impedire." And Hildanus, by way of reproof to what Felix Wirtz ſays: " Aliquando duram matrem cranio undique adhærere vidimus."

Fallopius, ſpeaking of the dura mater, ſays: " Continuo pulſat, quare non facile
" ſanatur."

Petrus e Marchetti ſuppoſed the dura mater always to be at a diſtance from the ſkull in thoſe who were bald. Speaking of the treatment of a particular caſe he ſays: " Poſt ſep-
" timam nempe oleum hyperici, quia calvus erat patiens atque membrana a calvaria di-
" ſtabat; quod in calvis ſemper obſervavi." PET. e MARCHETTI Obſ. Chir.

" Aliquando contingit ut dura mater cranio ſatis firmiter adhæreat, ſed hæc *admodum*
" *raro evenire ſolet, atque præter naturæ* conſuetudinem eſt." MUYS Prax. Rat. Chirurg.

This was alſo the opinion of Sylvius, Pacchioni, Ambroſe Paré, Serjeant Wiſeman, Baglivi, Barbette, and of all thoſe who maintained the doctrine of the oſcillation of the dura mater; and who believed that that membrane was found ſometimes higher, ſometimes lower, that is, ſometimes nearer to, ſometimes farther from the ſkull, at one age, and at one time of the moon, than another.

cant. Upon this principle ſtood both their opinion and practice; and therefore it is not to be wondered at, that their accounts, in general, are ſo perplexed, and ſo ſeldom verified by the examination of dead ſubjects.

It ſometimes happens, that the ſcalp is ſo wounded at the time of the accident; or ſo torn away, as to leave the bone perfectly bare, and yet the violence has not been ſuch, as to produce the evil I am now ſpeaking of. In this caſe, if the pericranium be only turned back, along with the detached portion of ſcalp, there may be probability of its re-union, and it ſhould therefore be immediately made clean and replaced, for the purpoſe of ſuch experiment, which, if it ſucceeds, will ſave much time, and prevent conſiderable deformity. If this attempt does not ſucceed, the detached piece may be removed, and the caſe then becomes, as if the ſcalp and the pericranium had been forced away, at the time that the wound was firſt inflicted; and the worſt that can happen, is an exfoliation from the bare ſkull.*

It

* Not that exfoliation is the neceſſary conſequence of the ſkull being laid bare: this depends upon other circumſtances, beſides the mere removal of the ſcalp, and pericranium. The ſolidity of the ſurface of the bones, the ſize of the veſſels, and the impulſe of the blood through them, are what principally determine that. If the cortex of the bone be not very hard, and the impulſe of the blood be capable of counterbalancing the effects of the external air, a granulation of fleſh will be generated on the ſurface of the bone, which will cover, and firmly adhere to it, without throwing off the ſmalleſt exfoliation; eſpecially in young ſubjects. On the contrary, if the bone be much hardened, and the veſſels thereby conſtringed; or if ſuch applications be made uſe of, as will produce an artificial conſtriction of them, the ſurface will neceſſarily become dry, and the juices ceaſing to circulate through it, it muſt part with a ſcale to a certain depth; that is, that part of the ſurface through which the circulation ceaſes to be carried on, will be ſeparated from, and caſt off by, the veſſels which nouriſh the reſt of the bone.

It does alſo ſometimes happen, that the force which detaches or removes the ſcalp, does alſo occaſion the miſchief in queſtion, but the integument being wounded, or removed, we cannot have the criterion of the tumor of the ſcalp, for the direction of our judgment. In theſe circumſtances our whole attention muſt, (as I have already ſaid) be directed to the wound and general ſymptoms: the edges of the former will, (as I have already obſerved) digeſt as well, and look as kindly, for a few days, as if no miſchief was done underneath; but after ſome little ſpace of time, when the patient begins to be reſtleſs, and hot, and to complain of pain in the head, theſe edges will loſe their vermillion hue, and become pale and flabby, inſtead of matter they will diſcharge a thin gleet, and the pericranium will looſen from the ſkull, to ſome diſtance from the ſaid edges; immediately after this, all the general ſymptoms are increaſed, and exaſperated, and as the inflammation of the membrane is heightened, or extended, they become daily worſe and worſe, until a quantity of matter is formed, and collected, and brings on that fatal period, which, though uncertain as to date, very ſeldom fails to arrive.

The method of attempting the relief of this kind of injury conſiſts in two points, viz. to endeavour to prevent the inflammation of the dura mater, or, that being neglected, or found impracticable, to give diſcharge to the fluid collected within the cranium, in conſequence of ſuch inflammation.

Of all the remedies in the power of art, for inflammations of membranous parts, there is none equal to phlebotomy. To this truth many diſeaſes bear teſtimony; pleuriſies, ophthalmies, ſtrangulated hernias, &c. and if any thing can particularly contribute to the prevention of the ills likely to follow ſevere contuſions of the head, it is this kind of evacuation; but then it muſt be made uſe of in ſuch a man-

a manner as to become truly a preventative, that is, it muſt be made uſe of immediately, and freely.

I am very ſenſible, that it will in general be found very difficult to perſuade a perſon, who has had what may be called only a knock on the pate, to ſubmit to ſuch diſcipline, eſpecially, if he finds himſelf tolerably well. He will be inclined to think, that the ſurgeon is either unneceſſarily apprehenſive, or guilty of a much worſe fault; and yet, in many inſtances, the timely uſe, or the neglect, of this ſingle remedy, makes all the difference between ſafety, and fatality.

It may be ſaid, that as the force of the blow, the height of the fall, the weight of the inſtrument, &c. can never preciſely or certainly determine the effect, nor inform us whether miſchief is done under the bone or not, a large quantity of blood may be drawn off unneceſſarily, in order to prevent an imaginary evil. This is in ſome degree true, and if the advice which I have juſt given was univerſally followed, many people would be largely bled without neceſſity; but then, on the other hand, many a very valuable life would be preſerved, which for want of this kind of aſſiſtance is loſt. "Nihil "intereſt, præſidium an ſatis tutum ſit, quod unicum eſt," is an incontеſted maxim in medicine, and if it be allowed to uſe ſuch means, as may be in themſelves hazardous, ſurely it cannot be wrong to employ one which is not ſo; at leaſt, if it be conſidered in a general ſenſe, whatever it may accidentally prove to ſome few particular individuals.

Acceleration, or hardneſs of pulſe, reſtleſſneſs, anxiety, and any degree of fever, after a ſmart blow on the head, are always to be ſuſpected and attended to. Immediate, plentiful, and repeated evacuation by bleeding, have, in many inſtances removed theſe, in perſons to whom, I do verily believe, very terrible miſchief would have happened,

pened, had not ſuch precaution been uſed. In this, as well as ſome other parts of practice, we neither have, nor can have any other method of judging, than by comparing together caſes apparently ſimilar. I have more than once or twice ſeen that increaſed velocity and hardneſs of pulſe, and that oppreſſive languor, which moſt frequently precede miſchief under the bone, removed by free and repeated bloodletting; and have often, much too often, ſeen caſes end fatally, whoſe beginnings were full as ſlight, but in which ſuch evacuation had been either neglected or not complied with.

I would by no means be thought to infer from hence, that early bleeding will always prove a certain preſervative; and that they only die to whom it has not been applied: this, like all other human means, is fallible, and perhaps there are more caſes out of its reach, than within it; but where preventative means can take place, this is certainly the beſt, and the moſt frequently ſucceſsful.

The ſecond intention, viz. the diſcharge of matter collected under the cranium, can be anſwered only by the perforation of it.

When, from the ſymptoms and appearances already deſcribed, there is juſt reaſon for ſuppoſing matter to be formed under the ſkull, the operation of perforation cannot be performed too ſoon; it ſeldom happens that it is done ſoon enough.*

The propriety or impropriety of applying the trephine, in caſes where there is neither fiſſure, fracture, nor ſymptom of extravaſation, is a point which has been much litigated, and remains ſtill unſettled either by writers or practitioners.

When there is no reaſon for ſuſpecting any of thoſe injuries, either from the ſymptoms, or from the appearances, and the pericranium, whether the ſcalp be wounded or not, remains firmly attached in

* "His, ubi cito manus admoveatur, ſalutis aliqua ſpes ſubeſt; ubi ſerius, plerique "omnes moriuntur," ARCHIGENES.

in all parts to the ſkull, there certainly is not, (let the general ſymptoms be what they may) any indication where to apply the inſtrument, and conſequently no ſufficient authority for uſing it at all; but whenever that membrane, after the head has received an external violence, ſeparates, or is detached ſpontaneouſly from the bone underneath it, and ſuch ſeparation is attended with the collection of a ſmall quantity of thin, brown ichor, an alteration of colour in the ſeparated pericranium, and an unnatural drineſs of the bone, I cannot help thinking, that there is as good reaſon for trepanning, as in the caſe of fracture; I believe experience would vindicate me, if I ſaid, better reaſon; ſince it is by no means infrequent, for the former kind of caſe to do well without ſuch operation, whereas the latter, (I mean ſuppuration under the ſkull) never can.*

All the beſt practitioners have always agreed in acknowledging the neceſſity of perforating the ſkull in the caſe of a ſevere ſtroke made on it, by gun-ſhot, upon the appearance of any threatening ſymptoms, even though the bone ſhould not be broken, and very good practice it is. A wound by gun-ſhot, (as far as it relates to the ſkull) is to be regarded only as one attended with a very high degree of contuſion, and therefore moſt likely to produce ſymptoms accordingly, among which, inflammation of the dura mater ſtands principal. Experience confirms both; moſt of the ſymptoms, attending wounds of the head, made by gun-ſhot, are ſymptoms of contuſion, and the formation of matter between the cranium and dura mater, is a very frequent, and a very fatal conſequence of ſuch contuſion.

In

* "Les auteurs juſqu'ici, ne nous ont parlé du trepan qu' autant qu' il pouvoit ſervir a relever des pieces du crane enfondées, par un coup violent, ou a donné iſſue a quelque liqueur, comme ſeroit du ſang, ou du pus, epanché, ſous le crane.

"La contuſion de l'os eſt un cas, ou le trepan n'eſt pas moins neceſſaire; non a cauſe que l'os eſt contus, mais pour prevenir la maladie de la dure mére, & de la pie mere; qui en eſt une ſuite preſque indiſpenſable." LE DRAN.

In ſhort, the ſpontaneous ſeparation of the pericranium, if attended with general diſorder of the patient, with chilline ſs, horripilatio, languor, and ſome degree of fever, appears to me, from all the obſervation I have been capable of making, to be ſo ſure and certain an indication of miſchief underneath, either in preſent, or impending, that I ſhould never heſitate about perforating the bone in ſuch circumſtances.

When the ſkull has been once perforated, and the dura mater thereby laid bare, the ſtate of the latter muſt principally determine the ſurgeon's future conduct. In ſome caſes, one opening will prove ſufficient for all neceſſary purpoſes, in others ſeveral may be neceſſary. This variation will depend on the ſpace of detached dura mater, and the quantity of collected matter. The repetition of the operation is warranted, both by the nature of the caſe, and by the beſt authorities, there being no compariſon to be made between the poſſible inconvenience ariſing from largely denuding the dura mater, and the certain, as well as terrible evils, which muſt follow the formation and confinement of matter between it and the ſkull.

It can hardly be neceſſary for me to obſerve, to whoever reflects ever ſo little on the true nature of theſe caſes, that notwithſtanding the operation of perforation be abſolutely and unavoidably neceſſary, yet the repetition of blood-letting, of cooling laxative medicines, the uſe of antiphlogiſtic remedies, and a moſt ſtrict obſervance of a low diet and regimen, are as indiſpenſably requiſite, after ſuch operation, as before; the perforation ſets the membrane free from preſſure, and gives vent to collected matter, but nothing more; the inflamed ſtate of the parts under the ſkull, and all the neceſſary conſequences of ſuch inflammation, call for all our attention, full as much afterwards as before; and although the patient muſt have periſhed without the

uſe of the trephine, yet the merely having uſed it will not preſerve him, without every other caution and care.

This being all that our art is capable of doing in theſe melancholy caſes, I wiſh I could ſay, that it was moſt frequently ſucceſsful. Sometimes it is: the operation, conſidered abſtractedly, is not in itſelf hazardous, and is the unicum remedium, for the moſt immediately impending, and moſt threatening miſchief; ſome have been ſaved by it, none can eſcape without it; as there are no certain indications, no criteria, whereby we are enabled to judge, whether it will prove ſucceſsful, or not, the event of each individual caſe can alone determine. When that is happy, the means are very juſtly commended; but when it is not ſo, they ought not therefore to be condemned; ſince they are built on rational principles, and are the only means in human power.

CASE

CASE I.

A Poor fellow croſſing Tower-hill, got, before he was aware of it, into a mob, that was endeavouring to reſcue a ſailor from a preſs-gang. The man was knocked down. When the croud diſperſed, he was found ſenſeleſs, and in that ſtate was brought to St. Bartholomew's hoſpital, where he was immediately let blood, and put to bed. In an hour or two, he was ſo recovered, as to be able to give the preceding account.

When Mr. Nourſe (whoſe week it was for accidents) ſaw him the next day, the man appeared to be perfectly well, nor did any mark of violence appear on his head, except one ſmall bruiſe, and that ſo ſlight, that it might, with more probability, be attributed to the fall, than the blow. However, as he was poſitive, that he had been knocked down, by a very ſmart blow, from a heavy weapon; and as he certainly had been deprived of ſenſe a conſiderable time thereby; Mr. Nourſe bled him again, and ordered him to be kept in bed, and to a very low diet. At the end of three days the man found himſelf ſo well, as to leave the hoſpital, and go to work. On the twelfth day from that of the accident, he came to my ſurgery, and complained of being much out of order; ſaid, that his head was very uneaſy; that he was hot, thirſty, got little or no ſleep, and was, at times, ſo faint that he could not purſue his labour. He looked ill, aſſured me he had lived very ſoberly, from the time of his leaving the hoſpital, and that he had been in his preſent ſtate for three days paſt. I took him

into the houſe again, bled him, ordered him a glyſter immediately, and that he ſhould be kept in bed.

Next day, (13th) he was in much the ſame ſtate as the preceding: he had paſſed a reſtleſs night, had doſed now and then, but awoke with much diſturbance. He had a hot ſkin, and a fluſhed countenance, mixed with a light yellow tint; he complained of general pain and tightneſs all over his head, but neither to the ſight, nor to the touch, was there any appearance, or ſenſation, whereon to build a probable ſuppoſition, of particular miſchief. He was again, by the phyſician's order, let blood, and directed to take the ſal abſinthii mixture, with a few grains of rhubarb in it, every ſix hours. He paſſed the enſuing night in a diſturbed manner, and the next day, (the 14th) was apparently worſe; his ſkin was hotter, his pulſe quicker, and his pain more acute; he alſo now thought, that one part of his head was tender to the touch, and ſaid, he was ſure, that was the part which received the blow. This place I examined. The ſcalp did ſeem to be rather fuller than natural, but by no means ſufficiently ſo, to enable me to form any judgment by. Toward the cloſe of this day he had a ſlight ſhivering, was ſick, and vomited, and paſſed the following night without any ſleep at all; talking ſometimes incoherently, but ſtill capable of giving a rational anſwer to any queſtion which engaged his attention. On the 15th day, the tumor of the ſcalp was more apparent, but yet ſeemed to contain little or no fluid, and was about the breadth of a crown piece. I would have removed that portion of ſcalp; but while I was intending it, the poor man had a very ſevere rigor, which diſordered him ſo much, that he begged to be let alone for the preſent. That afternoon he had two more ſhiverings, paſſed very ill the following night, and next morning was delirious. The tumor now was more riſen, contained palpably a fluid, but was

by

by no means tenſe; I took away the whole tumid piece, by a circular inciſion, gave diſcharge to a thin brown ſanies, and found the cranium perfectly naked, altered conſiderably in colour from that of a healthy natural one, but without fiſſure, fracture, or other evil. That whole night and next day he was delirious; his ſkin burning hot; he had frequent ſpaſms, which ſhook his whole frame, and the next night (the 17th) he died.

The whole ſcalp, except round the edge of the inciſion, was in a natural ſtate; the pericranium in every other part, except the tumid one, adhered to the bone; and neither inflammation, nor tumor of any kind all over the reſt of the head. Under that part of the ſkull from which the pericranium had been detached, and from which the ſcalp had been removed, a very conſiderable collection of matter was found lying between the dura mater and cranium, but no appearance of diſeaſe any where elſe.

CASE

CASE II.

Contuſion with Wound.

A YOUNG fellow, playing at quoits, was ſtruck down by the perpendicular fall of one of them on his head. It made a large wound, which bled freely, but did not divide the pericranium, and conſequently did not denude the ſkull. The wound was brought together by a ſtitch, made by ſomebody at hand, and the man, though ſtunned at firſt by the blow, having vomited plentifully, was ſoon well, and the next day went to his work, which was that of a farrier. The wound was dreſſed daily with a ſuperficial pledgit, by the perſon who firſt ſaw and ſtitched it, and it ſeemed to unite kindly.

On the ſixth day from that of the accident, he complained of being chilly and faint; and when he had done about half a day's work, found himſelf unable to bear the heat of the forge, or to ſtoop to ſhoe a horſe, on account of pain in his head: he therefore left his ſhop, went home, and ſent for the apothecary who firſt had dreſſed him. The wound not being very carefully examined appeared to be healed, and therefore was not regarded as any cauſe of the man's preſent indiſpoſition, who was treated as having a fever, from cold, and irregularity: he was let blood, and took ſome medicines; but at the end of three days, (nine from the accident) being worſe, and incapable of bearing the expence of remaining at home, he was brought to St. Bartholomew's hoſpital. On the tenth day, from that on which

which he was wounded, I ſaw him. He had a conſiderable degree of fever; his pulſe was hard and quick, his ſkin hot and dry, his face fluſhed, his eye languid, and he complained of great pain and tightneſs all over his head. The wound was apparently, but not really healed; I could paſs a probe underneath, from one end to the other of it; and I could feel the cranium bare the whole way. I divided its whole length; found the pericranium ſloughy, and detached to a conſiderable diſtance, and the bone much altered in colour; upon ſight whereof, I removed the whole ſeparated part, by a large circular inciſion.

From the ſymptoms and appearances I prognoſticated no good. He was again let blood, and had a glyſter, and a lenient purge, which together produced three ſtools. That night, (the 10th) he had a rigor, after which his pain became more intenſe, and fever higher. The next morning, (the 11th) he had another ſhivering; and when I ſaw him about noon, he was very inconſiſtent. I ſet on a trephine cloſe to the ſagittal ſuture, on one ſide; and gave diſcharge to a ſmall quantity of matter, which lay on the ſurface of the dura mater; after being lightly dreſſed, ſome more blood was drawn from one of the jugular veins, and he was ordered to take a draught of the ſalt of wormwood mixture frequently. The next day, (the 12th) he was worſe. I therefore ſet the trephine on again, but on the other ſide of the ſuture, and by that means let out a conſiderable quantity of matter from between the ſkull and membrane. Soon after this, he became more rational, and ſeemed to get a little ſleep; but in the evening his pain returned with great violence, and he had a rigor, which held him above an hour.

When I ſaw him the next day, (the 13th) he was ſenſeleſs, had a low faltering pulſe, and a profuſe cold ſweat; ſoon after which he expired.

Upon

Upon removing the upper part of the ſkull, a large quantity of matter was found, under each parietal bone, which had detached the dura mater from its connexion with the ſkull, for a conſiderable ſpace, but not at the ſuture. On the right ſide a portion of the dura mater was become ſloughy, about the breadth of a ſhilling; and under this altered part, was matter between the two meninges.

The more firm attachment of the dura mater at the ſutures, renders the ſeparation of it at theſe places very difficult: which circumſtance, added to the conſideration of the ſituation of the ſagittal ſuture on the very top of the head, renders the application of the trephine on each ſide of it often abſolutely neceſſary. For if there be good reaſon to ſuſpect either an extravaſation of blood, or a collection of matter, in conſequence of a blow received on this ſuture, and one ſide only be perforated, the operation may happen to be performed on that ſide where the blood or matter does not lie, and will therefore be ſucceſsleſs; or, on the other hand, the extravaſation, or ſuppuration, may be on both ſides; and then the perforation of one only cannot anſwer the whole purpoſe, and the patient will as certainly periſh as if nothing had been done at all.

CASE

Upon

CASE III.

Contuſion without Wound.

A Boy about nine years old, playing under an empty cart, whoſe ſhafts were ſupported by a ſtick, was knocked down, by the fall of one of them upon his head. The child was ſtunned by the blow for a minute or two, but ſoon became ſenſible. When he came home, there being a ſmall ſwelling where the blow had been ſtricken, his mother applied a bit of linen rag, wet with vinegar; and as he appeared to be perfectly well in a day or two, he was ſent to ſchool.

Five days paſſed over before he made any complaint; on the ſixth, he ſaid, that his head ached; he brought up his breakfaſt, and could eat no dinner; but in the evening ſeemed to be pretty well again. On the 7th, he complained ſtill more of his head, and ſaid, that he was very ſick, and very cold. He was put to bed, but got no reſt. As he had not had either ſmall-pox, or meaſles, he was brought home, and treated as if one of theſe diſeaſes was to follow.

Three days more paſſed, and no eruption appeared: the fever continued much the ſame; he was frequently inclined to vomit, and what little ſleep he got, was extremely diſturbed. He was, by the order of a phyſician, let blood, had a bliſter applied to his back, and took ſome of the common febrifuge medicines. On the 12th day from that of the accident, he was ſeized with a ſhivering, which held him more than a quarter of an hour; after which his pain became more acute, and his fever higher. Some blood was drawn from his temples by

leeches, and he was ordered ſome other medicines. On the 13th, at noon, he had another rigor, ſtill more ſevere than the former, and of longer duration, and that evening he became light-headed. By ſome means or other, the accident of the blow was now mentioned to the perſon who attended him, and who deſired that a ſurgeon might look at his head. I found about a third part of the left parietal bone covered by a flat iſh tumor, containing a fluid.

From the appearance of this ſwelling, from the date of the accident, the attack, violence, and duration of the ſymptoms, I made no ſcruple to give my opinion, that the blow had been the ſole cauſe of all the child's illneſs; that I ſuſpected the ſkull under the tumor to be bare, if not injured; that I did alſo believe, that matter was forming, or formed, under the ſcull; and, that if the laſt conjecture was true, the only chance the child could have of preſervation, muſt be from the operation of the trephine.

The ſcalp was divided, and the ſkull found as I ſuſpected, that is, perfectly bare, and altered from a natural colour; I would therefore have perforated it immediately; but as the bone was not broken, the parents objected to ſuch operation; and the phyſical gentleman, who had the care of the boy, not having ſeen much buſineſs of this kind, and not rightly comprehending the true nature of the caſe, joined in opinion with the parents, that ſuch operation was not neceſſary. It was therefore not performed, and the whole was committed to internal remedies.

The fever increaſed, and the child's ſtrength decreaſed in proportion: he continued delirious for three days more, then ſank into a ſtate of inſenſibility, and died.

Having

Having been contradicted, and (as I thought) ſome what improperly overruled, in the management of the patient while alive, I was the more importunate to get leave to examine him when dead.

All that part of the dura mater which had been covered by the left parietal, and part of the temporal bone, was detached from the ſaid bones, and covered with a conſiderable quantity of matter. Under the middle part of the former bone, the dura mater was diſcoloured, and ſloughy; this diſcoloured part I opened with a lancet, and let out near a ſpoonful of mater; which matter lay between the meninges. All the reſt of the contents of the head were unaffected.

When firſt I ſaw this child, all chance of relief from evacuation was over, and his ſymptoms plainly indicated miſchief under the ſkull. Nothing therefore but perforation could give him any kind of chance.

I do not ſay, that this operation would have ſaved him; I am much inclined to believe that it would not; but ſtill it was the only thing, that could with propriety have been done for him; and therefore it ought to have been done, inſtead of waſting time with the uſe of internal remedies, from which no poſſible good could be expected, or derived.

CASE IV.

Contuſion without Wound.

A Labouring man fell from a ſcaffold, two ſtories high, by which he was for a few minutes ſtunned, and inſenſible, but ſoon recovered. He was let blood, and having bruiſed his right arm, and the ſame ſide of his forehead, he was properly dreſſed, by ſome body in the neighbourhood.

Next day being very well, he returned to his labour, and followed it daily for five more. On the ſixth, finding himſelf a good deal out of order, he came to the hoſpital for advice. He complained of ſhooting and frequent pain in his head; of giddineſs, and inclination to vomit; and ſaid, that he felt, as if a cord was drawn tight round his brain. On the right ſide of his forehead was a ſmall tumor, neither tenſe, nor painful, but palpably containing a fluid. I perſuaded the man to let me open it. I found a ſmall quantity of a brown fluid, covering the bone, perfectly denuded of its perioſteum; upon which diſcovery, I removed the whole piece by a circular inciſion; fourteen ounces of blood were drawn from his arm; a glyſter was thrown up, and he was confined to his bed, and barley-water.

Next morning, (the ſeventh) his pulſe was full, hard, and frequent; he had ſlept very little, and that in a very diſturbed manner. He was, by the phyſician's order, let blood again, and directed to take the ſal abſinthii mixture, with rhubarb ſextis horis. On the eighth day, he was let blood again from one of the jegulars, and being rather ſtill coſtive

coſtive took a gentle purge. On the ninth, his pulſe was ſtill higher and harder, and his ſkin more hot and dry; twelve ounces more of blood were drawn off from one of the temporal arteries. That evening he had a ſhivering, after which he complained that his pains were much increaſed. Next morning, (the tenth) his ſore looked very ill; was pale, ſpongy, and glaſſy, and the ſcalp ſeparated from the ſkull to ſome diſtance beyond the edges of the wound. I ſet on a trephine, and removed a piece of the cranium, under which the dura mater was ſmeared over with matter, and had loſt its bright colour. That night he got no ſleep, and toward morning had another rigor. The eleventh, at noon, he was manifeſtly worſe, in every reſpect; his pain was intenſe, his fever high, and his ſore as ill-conditioned as poſſible. With the largeſt trephine I had, I took away another piece of the cranium, nearer to the temporal bone, and by means of this opening, procured the diſcharge of a conſiderable quantity of matter. This done, finding his pulſe ſtill high, and full, I drew off ten ounces more of blood, and ordered him a glyſter. The loſs of blood produced a ſwooning, which laſted ſome minutes, after which, he ſaid, that he thought his head was rather eaſier. As the evening approached, his pain returned, wherefore ſome leeches were applied to his temples. That night he got a little quiet ſleep, and in the morning of the twelfth day, ſaid that his head was perfectly eaſy: a very large diſcharge of matter had been made through the perforation in the cranium, and I thought that the wound of the ſcalp wore rather a better aſpect. He was kept ſtrictly to a proper low regimen; took at firſt the ſal abſinthii mixture freely; when his pain had left him, the phyſician ordered him the bark; and in a very few days every bad ſymptom and appearance left him.

Would

Would not this caſe, which ended ſo happily, have been attended with the moſt fatal conſequences, if the free perforation of the ſkull had been omitted, or if leſs blood had been drawn off.

CASE V.

Contuſion with Wound.

A Young fellow of about twenty years, was thrown from an unruly horſe, againſt one of the rails in Smithfield. The blow was great; he lay ſenſeleſs for above an hour, and in that ſtate was brought into St. Bartholomew's hoſpital.

He had a large wound on one ſide of his forehead, the ſkin of which was partly torn quite off, and partly turned down over his eye. The lips of the wound were, by the perſon who ſaw him firſt, brought as near together as they would admit, but ſuch a portion was loſt, as neceſſarily left the bone bare about the breadth of a ſhilling. As ſoon as his wound had been examined, he was let blood and put to bed. The next day, his pulſe being hard and full, he was again let blood, and was ordered to have a glyſter, a lenient purge, and ſome febrifuge medicines. On the third, the wounded ſcalp, and that ſide of the face being much ſwollen, a warm cataplaſm was applied over the dreſſings, and the part was well fomented; and in about five days more, every thing wore ſo good an aſpect, that the man ſeemed to be getting well apace. On the ninth, he complained of being out of order, ſaid his head ached, and that he had not ſlept the preceding night. He was hot and feveriſh, and his pulſe hard and full. He was therefore let blood again, and ordered to have a glyſter, and to be kept

very

very low. On the tenth, in the night, he had (as he called it) a chillineſs came all over him; after which, his pain was conſiderably increaſed. On the eleventh, his ſore ſeemed to ſpread, diſcharged a thin gleet inſtead of matter, the lint with which it was dreſſed, ſtuck faſt to all parts of it, and its ſurface, from having been florid and granulated, became tawny and ſpongy. That day he had another ſhivering; and on the next, being the twelfth, a conſultation was held on him. He was now very hot and feveriſh; his face much fluſhed, an eryſipelas beginning to appear on his eye-lids; his ſore very ill-conditioned, and the bare bone ſo much changed from its natural colour, that it looked as if matter might have been ſeen through it. Conſideratis conſiderandis, it was agreed that he had no chance for his life but by perforation of the bare cranium. The operation was immediately performed, and a quantity of matter found on the dura mater. For ſeveral days the diſcharge was great, and the man continued very ill; but about the eighteenth day the fever left him, he became eaſy, the diſcharge leſſened, his ſore put on a good face, and he got a natural ſleep. From this time nothing ſiniſter happened, and the man got ſoon well.

CASE VI.

Contuſion without Wound.

A Lad about twelve years old, ſtanding by a man who was playing at cricket, received a blow from the bat on his forehead. The boy became ſenſeleſs, and as he was not known to any body preſent, he was brought to the hoſpital. He recovered his ſenſes before he got thither;

thither; but the part which received the ſtroke being much ſwollen, he was dreſſed, let blood, and ordered to keep in bed. When I ſaw him next morning he had no complaint, but the ſoreneſs of his forehead, under the ſkin of which there ſeemed to be a good deal of extravaſated, coagulated blood. His pulſe was full and ſtrong; he was therefore again let blood, and as he had not had a ſtool for two days, a glyſter was thrown up, and a lenient purge given. A diſcutient cerate was kept upon his forehead; and being of a coſtive habit, he was purged once in two or three days; and on the ninth, from that of the accident, was diſcharged from the houſe. On the fourteenth, he returned to it again, complained of laſſitude, giddineſs, and head-ach. He was put under the care of the phyſician, was let blood, vomited, purged, and took proper medicines, but remained much the ſame for three or four days, that is, he was feveriſh, with a ſkin too hot, a pulſe too quick, and what little ſleep he got was unquiet, and ſhort. On the ſeventeenth day he had a ſlight rigor, during and after which his pain in the head was much more intenſe, and the following day all his febrile ſymptoms were much exaſperated; on the nineteenth, he complained of tenderneſs to the touch on his forehead, and great general pain in his head. He was again let blood, and was more ſunk by the diſcharge than I could have ſuppoſed, but no remiſſion of his ſymptoms followed. His ſleep that night was very little, and very unquiet; toward morning he had two diſtinct ſhiverings, and when I ſaw him at noon, on the twentieth, his forehead appeared ſomewhat tumid and puffy. From the continuance and exaſperation of his ſpmptoms, and from the new appearance on his forehead, I was almoſt certain there was miſchief on or under the ſkull; I therefore divided the ſcalp, to examine the bone, and found, between it and the pericranium, which had quitted its adheſion for more than the breadth of a crown-piece, a ſmall quantity of a thin, diſcoloured fluid.

This

This (as it appeared to me) put the nature of the the caſe out of doubt, and left the boy no chance, but from perforation. I therefore applied the trephine immediately, and gave diſcharge to matter formed between the dura mater and bone. For a week after the operation, the diſcharge was large, and the boy in much hazard, but at the end of that time, the ſuppuration leſſened, the dura mater incarned kindly, and by proper care, and taking freely of the decoct. cortic. peruv. he got well.

CASE VII.

Contuſion without Wound.

A Man in the neighbourhood of St. Giles's had a quarrel with his wife; in which he ſtruck her over the head with a mop-ſtick. The blow was a ſmart one, but as it neither fetched blood, nor brought her to the ground, it only finiſhed the diſpute, and no farther notice was taken of it. The woman followed her buſineſs, which was that of crying greens about the ſtreets, and lived, (to uſe her own words) ſometimes drunk, ſometimes ſober, for a week. On the eighth day from that of the blow, ſhe found herſelf ſo ill, that ſhe applied to the hoſpital for admiſſion; and was taken in as a phyſician's patient for a fever. The doctor wrote for her; and the day after this, (the tenth from the accident) the ſiſter of the ward, in cutting off the patient's hair, which was full of vermin, diſcovered a ſwelling, which ſhe deſired me to look at: it was flattiſh, about the breadth of the palm of a hand, and lay immediately a-croſs the ſagittal ſuture. The woman had now a hard, full pulſe, a hot dry ſkin, a black tongue, a frequent inclination to vomit, great thirſt, intenſe pain in her head, and got no

ſleep. From theſe ſymptoms and appearances, and from the account which the woman now firſt gave of the blow, I made no heſitation to ſay, ſuch blow was the cauſe of all her ſymptoms. That night ſhe had a ſevere rigor, and the next day, the eleventh, an eryſipelas, had taken poſſeſſion of part of her viſage. I opened the tumour, and finding the bone bare, cleared away the ſcalp largely, and circularly. I then applied a trephine on one ſide of the ſuture and cloſe to it, and found the dura mater altered in its natural colour, and as it were ſmeared over with matter. She paſſed the ſucceeding night very ill, was in great pain, got no ſleep, and had two ſhiverings. When I came to her the next day, her whole viſage was covered with an eryſipelas, and ſo ſwollen, that ſhe could not open her eye-lids. I applied the trephine on the other ſide of the ſuture, and found the ſame appearance, viz. matter on the ſurface of the membrane. She had within the laſt two days been let blood three times, and had conſtantly taken ſuch medicines as the phyſician had ordered for her, and which were calculated to abate her fever, and keep her body open. Her ſymptoms ſtill continued without abatement; the wound of the ſcalp bore as bad an aſpect as poſſible, ſhe talked very inconſiſtently, got not a wink of ſleep, and called perpetually for drink. As the quantity of bone made bare by the removal of the ſcalp gave room for the farther application of the inſtrument, I made a third perforation near to the firſt, and immediately gave thereby diſcharge to ſo large a quantity of matter, as to ſatisfy me the event muſt be fatal.

The next day the right arm and leg became paralytic, and the day following that, from having been raving, ſhe ſunk into a ſtate of perfect inſenſibility, had a ſhort, laborious reſpiration, a ſmall, interrupted, faultering pulſe, and cold extremities, and on the ſixteenth day from that of the accident ſhe died.

Upon

Upon opening the head, the dura mater was found covered with matter, under the whole internal ſurface of both the parietal bones; but the firm adheſion of the longitudinal ſinus to the ſagittal ſuture had prevented all communication between the two collections of matter.

CASE VIII.

Contuſion with Wound.

A Lunatic threw himſelf from a window, two ſtories high, and in his fall, ſtruck his head, firſt againſt a ſign-iron, and then againſt a ſlated pent-houſe.

He was taken up ſenſeleſs, with three wounds on his head; one juſt above the right temple, and two on the top of his head: the wounds were but ſmall, nor was the pericranium divided in any of them. He remained ſtupid above twelve hours; but being in that ſpace of time let blood freely twice, he recovered his ſenſes, but ſhewed no ſigns of a right underſtanding. He paſſed two days and nights in the utmoſt diſorder and diſturbance. He was confined in a ſtrait waiſtcoat, and kept two people conſtantly employed in holding him: at laſt, by repeated phlebotomy, and taking a large quantity of opium, he fell aſleep, ſlept near twelve hours, and then awoke perfectly tranquil, and perfectly rational. By the ſixth day from that of the fall, his wounds were in perfect good order, and ſeemed to heal without any trouble; the man was in very good health and temper, and perfectly rational and intelligent. He would have been permitted by his friends to have gone out a little way into the country; but leſt there ſhould be any latent miſchief, I adviſed him to keep quiet a little longer, and to live with great caution; which advice was followed. On the tenth day

from that of the accident, he loſt his appetite, looked dull and languid, refuſed food and company, complained that his head ached, and ſaid, that he had not ſlept. So little time had paſſed ſince he had been diſordered in his mind, that, from his aſpect and manner, I ſuſpected a return of his lunacy. I let him blood again, directed that he might be kept low, and deſired his brother, who was an apothecary, to give him an opiate at going to bed. The next day, the eleventh, he ſaid that his head-ach had again prevented him from ſleeping all night, and that he felt as if a cord was bound tight about his brain: his ſkin was too hot, his pulſe was too hard and too frequent; his urine ſmall in quantity, and high coloured; and the aſpect of the wounds in the ſcalp, by no means ſo favourable as they had hitherto been; one of them looking more ſpongy and pale than the others, I examined with my probe, and found the ſkull bare for ſome ſpace, under it. With his own and brother's conſent, I removed all the ſcalp covering the bare cranium, and found it to be conſiderably altered from a natural colour. I bled him again, and deſired that he might take freely of the ſalt of wormwood and lemon juice until the next day. That night he had a ſmart rigor, and the next morning finding him worſe, and more diſturbed, I made a perforation of the ſkull. The dura mater under this perforation was dull, and had apparently matter on its ſurface, though ſmall in quantity. He was dreſſed lightly, and, as his pulſe would very well bear it, eight ounces more of blood were drawn off. The following morning, the thirteenth, he had a ſtill more ſevere ſhivering, his pain in his head was greater, his fever higher, and the whole ſore ſo crude, that the lint was with difficulty removed from it. I applied the trephine again, and found the ſame appearance, viz. a dull diſcoloured dura mater, and a ſmall quantity of matter. That evening he had another rigor, and was the following day manifeſtly worſe. Convinced, from the ſymptoms, of his hazard, and firmly

believing

believing that matter was collected, in ſuch manner as not to be diſcharged by the two openings already made, I ventured to make a third, and that a large one; which produced an immediate and large diſcharge of pus. In ſeven or eight hours I ſaw him again, and found him eaſier and more tranquil. He had ſlept nearly an hour, and his pulſe did not feel ſo rapid, nor ſo hard. That evening he got more ſleep, and the following morning anſwered every queſtion aſked, in ſuch manner, as to convince every body that he was certainly better. To ſhorten the relation, I ſhall only add, that the diſcharge continued large for ſeveral days, and then gradually decreaſed: all his ſymptoms by degrees alſo diſappeared, and in no great length of time, by proper care, he got very well.

When this patient was attacked with his firſt ſymptoms, I did not ſuſpect the true cauſe. His want of ſleep, his ſeeming anxiety, his taciturnity, and great unwillingneſs to anſwer any queſtion, ſeemed to me, to beſpeak a return of his maniacal diſorder. Upon this ſuppoſition, I gave him the opiate, hoping, that if I could procure ſleep, he might be better. But when I ſaw the altered appearance of the wound, and found that the pericranium had quitted its adheſion to the ſkull, I was no longer in doubt, that whatever elſe might concur to diſorder him, yet all his complaints were fairly deducible from the effects of his fall. And I apprehend he owed the preſervation of his life to the treatment he underwent, in conſequence of ſuch ſuppoſition.

CASE

CASE IX.

Contuſion with Wounds.

A Watchman, whoſe ſtand was in Whitechapel, got into a ſcuffle with ſome drunken ſailors, and received ſeveral wounds and blows on his head; from ſome of which he loſt ſo much blood, that he was the next day brought into St. Bartholomew's hoſpital in a very weak low ſtate.

Not one of the wounds, which were five in number, had paſſed the perieranium, but his whole head was very much ſwollen and bruiſed. He was in other reſpects very well; that is, he did not complain of ſickneſs, or any other kind of pain than what foreneſs the bruiſes neceſſarily occaſioned; and he had the full and perfect uſe of his ſenſes. As he had already ſuſtained great loſs of blood, and was more than ſixty years old, I made uſe of no farther evacuation, but dreſſed his head ſuperficially, and directed that he ſhould be kept in bed. At the end of about a week, the general tumefaction was nearly gone, and all the wounds in a healing ſtate; the man tranſgreſſed rules of the hoſpital by ſtaying out all night, and was diſcharged. On the fifteenth day from that of the accident, he came to me again, complaining of head-ach, giddineſs, ſickneſs, failure of ſtrength, loſs of appetite, and want of ſleep.

All the wounds, except one, were perfectly healed; this was on the upper part of the right parietal bone; it was crude, ſpongy, and the exuberant fleſh of ſuch colour and conſiſtence, as inclined me, (conſidering at the ſame time his general ſymptoms) to ſuſpect miſchief underneath it. I took him into the houſe again, and immediately removed

moved a circular portion of the ſcalp, including the wound, and found both pericranium and ſkull in the ſtate I ſuſpected; that is, the former altered, and detached, and conſequently the latter bare. Neither the age, habit, nor ſtate of the man ſeemed to be capable of bearing free evacuation, nor did I in my own opinion believe that there was time for the experiment. I therefore perforated the middle of the bare part of the bone, and found a ſufficient warrant for having ſo done; that is, a ſmall quantity of matter on the ſurface of the dura mater. His head was dreſſed lightly, a little blood was drawn from one of his arms, and a glyſter thrown up to procure a ſtool. The following night he paſſed ill; had a ſlight ſhivering, got little or no ſleep, and complained very much of pain in his head; the bare membrane looked very crude, diſcharged a thin gleet, and preſſed hard againſt the edges of the bone. The next day, his pulſe being conſiderably riſen, he was let blood again: that afternoon he had another rigor, and his pain as well as fever became more intenſe.

On the eighteenth day, finding him in every reſpect worſe, I made another perforation, juſt below the former, and gave thereby a diſcharge to a larger quantity of matter, which the cloſe preſſure of the dura mater againſt the edges of the perforation had hitherto confined. On the twentieth, he was indeed rather eaſier, but his fever was very high, and both the dura mater and ſore in the ſcalp looked very ill; wherefore ſuſpecting more matter, and being ſatisfied the man had no other chance for life, I made a third perforation cloſe by the ſecond. This procured ſo large a diſcharge of pus, that I was very apprehenſive that the extent of the miſchief was too great for the aſſiſtance of art to prove effectual in; however, I was luckily diſappointed; for in a very few days more all his bad ſymptoms gradually left him, and the man got perfectly well.

From considering all the circumstances of this case, I am satisfied, that had not the cranium been perforated at all, the man must have died, from the collection and confinement of matter: and I am also as much convinced, that the two former perforations would have proved insufficient for the purpose, and that the man owed his preservation to the large removal of bone.

This is a point of practice, which has by no means been sufficiently attended to by practitioners, nor sufficiently inculcated by the writers of our country at least. Many, who see and are convinced of the justness, and propriety of it, want authority to vindicate them in proposing or executing it, and some part of the disgrace which has been cast on the operation of the trepan has arisen from this cause. Practitioners have in general been afraid to make more than one opening, and that generally a small one. If the inflammation be of any extent, or the quantity of matter at all considerable, this one small opening must prove insufficient, either for the relief of the tense inflamed membrane, or for the evacuation of the fluid; and the only probable chance which the patient can have, must be, from the removal of a large portion of bone; and this equally in the case of extravasation of blood, or serum, as in that of abscess.

CASE

CASE X.

Contuſion joined with Extravaſation.

A Fireman, who was at work on the top of an houſe, fell in with the roof of it; he was taken out ſenſeleſs, and brought in that ſtate to the hoſpital.

He had on different parts of his body ſeveral wounds and bruiſes, but none of them ſeemed to be of any great conſequence. On his head were four, one of ſome ſize, on the upper part of the frontal bone, near to the coronal ſuture, two on the left parietal, one on the right ſide of his head, juſt above his ear, and a ſmall bruiſe on the upper part of the os occipitis. Of all theſe wounds, the pericranium was divided in one only, viz. that near the coronal ſuture.

His wounds were dreſſed, he was largely bled, a glyſter was thrown up, and a purging mixture was ordered to be given cochleatim, until he ſhould have a diſcharge per anum. The next day he was in the ſame ſtate, perfectly ſenſeleſs, had the apoplectic ſtertor, a full labouring interrupted pulſe, and ſome difficulty of reſpiration. He had four or five large ſtools, wherefore his mixture was diſcontinued, but ſixteen ounces more of blood were drawn from one of the jugular veins; which evacuation was repeated again in the evening of the ſame day, to the quantity of eight more. On the third day, being ſtill perfectly ſtupid, diſcharging both urine and fæces involuntarily, and having ſtill a full labouring pulſe, both the temporal arteries were opened, and fourteen ounces drawn from thence. On the fourth, finding no alteration, and being ſatisfied that the man's ſtate could hardly be made worſe, I determined to perforate the cranium, and accordingly ſet a large trephine

on the upper part of the frontal bone, where the pericranium had been divided. The dura mater was found to be thinly covered with grumous blood, ſome of which I removed, and thereby made way for the diſcharge of more. The next day, (the fifth) finding that what diſcharge had been made, during the night, was bloody, and that the man was in no reſpect altered for the better, I thought I had ſufficient authority for repeating the operation, which I accordingly did, cloſe by and below the former; and as the blow, by which the wound had been inflicted, ſeemed to have been almoſt exactly on the top of his head, I made a third opening in the parietal bone, cloſe to the future. The appearance under all was the ſame as under the firſt, viz. a thin layer of grumous, or rather coagulated blood.

Next day, (the ſixth) toward evening, the man opened his eyes; and on the ſeventh, in the morning, he ſpake. The diſcharge of blood continued for ſeveral days, and at the end of about a week from this time ceaſed, the dura mater and the wounded ſcalp wearing as good an aſpect as could be wiſhed, and the patient being eaſy and rational.

On the eighteenth day, he complained of pain all over his head, was ſick, reached to vomit, and ſaid that he was faint and chilly. On the nineteenth his face was fluſhed, his ſkin hot, his pulſe quick, and hard. He was let blood, and ordered to have a glyſter, and to take ſome medicines of a febrifuge kind. A day or two more paſſed in this manner, his fever not violent, but rather increaſing than remitting; his pain, though not acute, yet ſuch as to deprive him of his ſleep; little rigors occuring irregularly, no perſpiration, and an exceſſive languor. At laſt, on the twenty-firſt day, on the upper part of the os occipitis, on the right ſide where there had been a ſmall bruiſe, a tumor aroſe, ſo characterized, as to ſatisfy me, that the cauſe of the late alteration of circumſtances lay underneath it; it did not riſe to any

height, and contained a ſmall quantity of ſanies, but covered a portion of bone which the pericranium had quitted. I removed the ſcalp, and would have ſet on a trephine, but the man obſtinately refuſed to ſubmit to it.

On the twenty-fifth day he loſt the uſe of his left leg and arm, and was at the ſame time much convulſed in his right; which paralyſis and ſpaſm continued until the twenty-ſeventh, and on the twenty-eighth he died.

Upon examining his head, a collection of matter was found under the bare part of the occipital bone; the dura mater under this matter was ſloughy and putrid, and about a deſert ſpoonful of matter lay between the meninges, juſt under the altered part of the dura mater. In the part where the bloody extravaſation had been, every thing was perfectly fair and free from diſeaſe.

In this caſe there ſeems to have been as clear a diſtinction between the bloody extravaſation, with its effects, and the inflammatory ſtate of the dura mater, with its conſequences, as can be deſired. All the firſt ſymptoms were ſuch as were cauſed by mere preſſure of the extravaſated blood; an obliteration of every ſenſible faculty, attended with the principal ſymptoms of an interrupted circulation. Perforation of the ſkull, where this extravaſation had been made, did, by giving diſcharge to the blood, happily remove theſe, and the man was getting well apace, until the ills ariſing from another cauſe, viz. the inflammatory ſeceſſion of the dura mater, in conſequence of contuſion, and that in another place, began to appear; they indeed made their attack rather late, nor did they riſe ſo high as they moſt frequently do; but then it muſt be conſidered what diſcipline the poor man had undergone, and what evacuation had been made. Notwithſtanding which, they bore their true, genuine, febrile, inflammatory character, and produced their moſt frequent event. What perforation of the os occipitale

might have done, I cannot ſay; I fear but little, as the matter was not only upon, but underneath the dura mater, and that too diſeaſed.

CASE XI.

Contuſion with Wound.

A Drayman, drunk, and ſleeping, fell from his dray, and his head was ſo ſqueezed between the wheel and a poſt, that a conſiderable portion of the ſcalp, together with the pericranium, was forced off from each parietal bone.

He was brought to the hoſpital ſenſeleſs; he was largely let blood, and the ſeparated ſcalp being ſo bruiſed and mangled as to afford no probability of re-union, it was removed, and the bone dreſſed with dry lint. The next day the man was ſo well, and ſo perfectly maſter of what ſenſe he had, that I was inclined to believe, that a great deal of the laſt night's appearance was owing principally to liquor.

In ten days time the edges of the torn ſcalp were digeſted, and bore all the appearance of ſores in a healthy man. One of the parietal bones ſeemed diſpoſed to granulate without any exfoliation, the other looked as if it would throw off a ſcale.

On the thirteenth day he was ſo well, that having a large family to work for, he deſired to be diſcharged from the hoſpital, and to be made an out-patient; but his ſores were ſtill ſo large, and I had ſo often been deceived by the fallacious appearance of ſuch caſes, that I perſuaded him to ſtay another week.

On the ſixteenth day he complained much of head-ach, and ſaid, that he was ſick and chilly; on the ſeventeenth, the florid, granu-

lated

lated appearance, and laudable matter of the ſores, were exchanged for a tawny, glaſſy ſurface, and a plentiful, thin gleet. I bled him freely, and bid him keep in bed. On the ſame day toward evening, he had a ſhivering, and the day following two more; that parietal bone (the left) which had hitherto looked as if it would be covered by a granulation, without exfoliating, now wore ſo diſeaſed an aſpect, that I fain would have ſet a trephine on it immediately, but the man would not permit me. Every other means were uſed, but to no purpoſe. The ſore on the right ſide of the head continued to look well, but the ſcalp quitted its adheſion to almoſt the whole left parietal bone, which bone looked very unlike to an healthy one.

On the twenty-third day, from that of the accident, he died, having been paralytic in his right leg and arm from the twenty-firſt.

The appearance of the two ſores, as well as of the two bones, were ſo different, that I had curioſity to ſee the ſtate of the parts underneath each. On the right ſide the dura mater was in a natural, ſound, adherent ſtate. On the left, it was ſeparated from almoſt the whole bone, and covered plentifully by matter, and was, for about the breadth of a half crown, ſloughy; under the ſlough the pia mater was diſeaſed alſo, and matter was alſo formed on the ſurface of the brain.

The following caſe was brought into St. Bartholomew's hoſpital, while I was confined to my houſe by ſickneſs. The account therefore of the patient, while living, is as taken by Mr. Earle, my apprentice; and that of the appearance after death, is in the words of the late ingenious Mr. Partridge, who aſſiſted Mr. Earle in the examination of the body.

CASE

CASE XII.

ON the tenth of February, 1765, John Biggs, a lad about thirteen years old, was driving a horſe round in a grinding mill, the horſe not being uſed to the work, ran round very faſt; the boy fell and received ſuch a blow from ſome part of the frame in which the horſe worked, that he lay, deprived of ſenſe, for ſome time, that is, until ſomebody came in to enquire why the mill went ſo rapid. He had a ſmall wound on the right ſide of his head, and no other apparent mark of injury. In a few hours, by the aſſiſtance of phlebotomy, he ſeemed to be very well again. His wound was dreſſed by the family apothecary for a week, during which time, he did not ſeem to have any other complaint, except now and then having a ſlight head-ach. The wound, not healing kindly, the boy being a country boy, hired only for the purpoſe of driving the mill-horſe, and the people with whom he lived being tired of keeping him unemployed, he was brought to the hoſpital. The wound, was not large, and although he did not ſeem to have any other complaint, was nearly three weeks in healing.

On the eighth of March, he was ſeiſed with a fever, beginning with a kind of cold fit. On the tenth, he was much diſordered, complained of acute pain in his head, and his wound, which had been healed, broke out again, the pericranium ſeparating from the bone; on the twelfth, he became ſenſeleſs to all outward objects, was convulſed in all his limbs, and jaw-locked. On this day Mr. Crane trepanned him, on the upper, fore and right ſide of the frontal bone. On the ſurface of the dura mater was found a conſiderable quantity of good matter, on the next morning he died.

The

The dura mater was detached from the cranium for about an inch, all round the perforation of the bone; what matter had been formed on its ſurface had been diſcharged by the operation, and little or none lodged; the pia mater and brain ſound in this part. At about two inches diſtance from the original wound, higher up, and nearer both to the coronal and ſagittal ſutures, was a ſmall tumor about the ſize of a ſplit garden bean; within this was a very little diſcoloured matter, and under it the bone was bare. The dura mater correſponding with this tumor was detached, black, and ſloughy, and a conſiderable quantity of matter lay under this ſloughy part, communicating with an abſceſs, formed between the two hemiſpheres of the brain, on the right ſide of the falciform proceſs.

SECT. III.

Separation, or deſtruction, of both tables of the ſkull from Contuſion.

THE ſeparation of a portion of the cranium, conſiſting of both tables, or of the whole thickneſs, happens not unfrequently, in old, or neglected venereal diſorders. The diſeaſe, which in theſe caſes has its ſeat in the diploe, often ſpoils the whole ſubſtance of the bone, and produces a ſeparation, or exfoliation of its whole thickneſs: the dura mater being always found, in ſuch caſe, to be covered only by an incarnation generated from its ſurface.

This kind of caries is ſometimes of large extent, in one piece, but more frequently it is of ſmaller ſize,* and affects different parts of the ſame

* I have ſeen in one caſe, nearly the whole os frontale caſt off; and in another, the whole left parietal bone.

ſame ſkull. The ſeparated piece is generally quite carious, and appears as if it had been worm-eaten, (what the French call vermoulue). The ſurface of the bone ſo diſeaſed, is ſeldom much elevated, though generally ſomewhat; neither has it often the circumſcribed form and appearance of a true node, as it is called; though now and then it has.

The ſcalp, which covers a bone in this ſtate, is moſt frequently diſeaſed alſo; ſometimes with one, large, ill-conditioned ſore; but more often with a number of crude, foul, painful, ſerpiginous ulcers; through moſt of which a probe will diſcover a rough, bare bone; and from which is conſtantly diſcharged, a greaſy ſtinking ſanies. This complaint is generally accompained by a nocturnal head-ach, pocky ſpots, and pains about the breaſt and ſhoulders; and is almoſt always preceded by the former, though very frequently that ſymptom ceaſes, either during the mercurial courſes, inſtituted for that purpoſe, or when the pericranium covering the diſeaſed part, becomes foul and ſloughy.

The proportion of extent of ſurface, which one table of theſe diſeaſed parts of the cranium bears to the diſeaſed part of the other table, is very uncertain, and often very unequal. Sometimes the alteration of the outer table is much more extenſive than that of the inner, in which caſe, when the ſeparation is made, the detached piece comes away very eaſily, and the uncovered part of the dura mater is ſmall, compared to the ſize of the external ſore; but ſometimes, on the contrary, the diſeaſe occupies a more conſiderable extent of the inner table than of the outer, and thereby renders the caſe more difficult and the cure more tedious.

A mercurial courſe, begun, even before the ſcalp covering the diſeaſed parts ſhall have been ulcerated, though it be often ſufficient, fully and perfectly to eradicate the lues from the habit, will neither prevent,

vent, nor cure, this local malady; which will therefore often remain, after ſuch cauſe of it has been really and totally removed; the bone is thoroughly ſpoiled, (at leaſt in the parts affected), and although the diſeaſe, conſidered abſtractedly, be cured, yet the texture of theſe harder parts neceſſarily requires more time to caſt off what is unſound, and to put on a healthy appearance, than the ſofter do, the local diſtemper will remain a long time after. An inattention to, or a miſunderſtanding of this circumſtance has been the cauſe, why many people have been harraſſed, and even deſtroyed with unneceſſary mercurial proceſſes, when the complaint has been truly local, which it frequently is after proper, previous mercurial treatment. Such medicines will be found to be ſo far from haſtening the removal, that by ſpoiling the conſtitution, relaxing the ſolids, impoveriſhing and diſſolving the fluids, and weakning the vis vitæ, they prevent nature from executing her own purpoſe, and really protract and retard that effect which they are uſed (though injudiciouſly) with deſign to expedite. Mercury is undoubtedly a ſpecific for the pox, but it is alſo a poiſon. It will cure that and ſome other diſeaſes; but its effects on the human frame are neither light, nor ſuperficial. It becomes beneficial or prejudicial, according to the manner in which it is applied; and when it ceaſes to do good, it will moſt certainly do harm. This, though a very flagrant inſtance of it, is not the only one which might be produced; the ſame obſervation might be made, on the maladies proceeding from a diſeaſed proſtate, and urethra, producing indurations, and fiſtulæ in perineo, in which the perſiſtance in the uſe of mercurials, after the producing lues has been cured, has coſt many a man his life, by aggravating, and continuing that ſymptomatic hectic fever, (the neceſſary conſequence of pain and irritation) which it ſhould be the whole buſineſs of art to calm and attemperate. In all theſe caſes a ſtrong decoction of ſarſaparilla, with milk, for the common drink, a ſoft, nutritive diet, a clear air, and the

free uſe of the Peruvian bark, will be found to be more conducive to the patient's recovery, than any continued uſe of mercury. By the former he will be reſtored and ſtrengthened, by the latter he will be irritated, waſted and deſtroyed.

The ſame kind of exfoliation or ſeparation of both tables of the cranium, is ſometimes the conſequence of mere external violence*.

The four following examples, which have fallen within my own knowledge, I ſhall relate without any comment.

CASE XIII.

A Gentleman's coachman was thrown from his box, on the road between London and Richmond, and received a wound in his forehead, which divided the pericranium, and denuded the bone about an inch above the ſinus. The man received no other harm in the fall; the lips of the wound were brought together by ſuture, and he drove home.

The next day his maſter, who was a governor of St. Bartholomew's, and a timorous man, ſent the patient into that houſe. As he ſeemed perfectly well, and the wound looked as if it would unite without any trouble, I dreſſed him only with a ſuperficial pledgit. This did not ſucceed, and the edges, inſtead of uniting, became ſpongy. I therefore

* Morgagni deduces this from miſchief done to the veſſels of the diploe. "Antequam "de Calvariæ ictibus verba facere deſinamus, illud non eſt prætereundum, utraque ejus "tabula prorſus illæſa, illæſiſque ſubjectarum meningum vaſis, accidere aliquando ab ictu "valido obtuſi corporis, ut vaſcula, quæ inter tabulas medullæ ſubſerviunt, rumpantur, "& ſanguinem fundant; qui procedente tempore corruptus, eoque acrior factus, quod "ſuccus medulloſus admiſceatur, qui tum mora et calore, in peſſimam degeneret rance- "dinem, interiorem tabulam carie afficiat; hominique, jam ictu oblito, & nihil ejuſ- "modi timenti, intro defluens, meninges vitiet, necemque afferat."

De Sedibus & Cauſis, &c.

ſore ordered him to be dreſſed with a little dry lint, thinking that the bare bone would ſoon throw off a ſmall ſcale, and finiſh the matter. At the end of three weeks every thing was exactly in the ſame ſtate; the bone bare, and not likely to exfoliate, and the edges ſpongy. Being in perfect health, the man was tired of the confinement of the hoſpital, and was permitted to go home, taking dreſſings with him.

At the end of two months from the date of the fall, he returned to the hoſpital again, and deſired me to look at his ſore; which was not only not healed, but diſcharged much too large a quantity of matter. The opening was about the ſize of a ſilver three-pence, round, ſoft, and ſpongy; upon feeling with a probe, I thought that the bone receded too much for a mere looſe exfoliation, and as the bone receded, the diſcharge of matter increaſed. Upon repeated trials, I was thoroughly ſatisfied, that both theſe circumſtances were true, and alſo that the looſe piece was much too large to be extracted from the preſent opening.

I conſidered, that the removal of a circular piece of ſkin would leave a ſcar, which would not only be a great deformity, but a deformity which would be liable to miſconſtructions, and as there were no bad ſymptoms to be obviated, nor any thing to be done, but merely to remove the looſe portion of bone, I made a longitudinal inciſion, ſufficient for its extraction, and laying hold of it with a pair of forceps, brought it away. It was the whole thickneſs of the cranium, in every part firm, hard, and perfectly white; and it left the dura mater covered by a florid healthy incarnation. I laid the divided ſcalp down upon the membrane, without any intervening dreſſing, and the ſore healed in a few days.

CASE XIV.

AN elderly woman riding in a hackney landau, by a ſudden jolt ſtruck her head with great violence againſt an iron hook, at the top of it, put there to hold the two parts of the roof together. The blow gave her exquiſite pain for the inſtant, but that ſoon ceaſed; and as it cauſed neither wound nor tumefaction, ſhe took no farther notice of it. At the end of near two months, ſhe was ſeized with a violent pain in her head; ſo violent, that for ſeveral nights ſhe was obliged to have recourſe to laudanum, in order to obtain a little broken reſt.

In about a week her pain went off, and a tumor aroſe, juſt where ſhe had been ſtricken; that is, juſt in the middle of the ſagittal ſuture.

Mr. Brown, of Little Britain, had the care of her; with him I ſaw her; we opened the tumor, and diſcharged a conſiderable quantity of diſcoloured and very offenſive matter. I paſſed my finger into the opening, and to my great aſtoniſhment found it touched the dura mater. We removed a circular piece of the ſcalp, and found the two oſſa parietalia bare, and carious for a conſiderable extent, on each ſide of the ſuture; and in the middle of this carious piece, juſt in the tract of the ſuture, a hole large enough to admit eaſily any man's finger, without touching the edges of the bone.

No exfoliation was found in the matter, or on the membrane; the dura mater lay at a conſiderable diſtance from the ſkull, in that part; the diſcharge from within was large and very offenſive; and about three weeks, from the time of opening, ſhe died ſuddenly in a kind of fit.

CASE

CASE XV.

IN the middle of September 1763, a woman about ſixty years old fell down ſtairs backwards; ſhe was ſtunned by the blow, which her head received from one of the ſteps, and lay ſenſeleſs ſome time.

There was neither wound nor conſiderable bruiſe; ſhe was let blood, and kept quiet for ſome few days; at the end of which, finding no inconvenience either general or particular, ſhe ceaſed to regard it.

On the eighteenth of December, ſhe was taken into the hoſpital, for a ſwelling on the right ſide of her head, nearly of the ſize of a ſplit Sevile orange. This tumor ſhe ſaid, had been preceded by a ſevere head-ach without fever; but as ſhe did not then believe that her fall had any ſhare in the production of her preſent complaint, ſhe ſaid nothing about it.

Her head being ſhaved, the tumor appeared full of a fluid. I divided the ſcalp, and let out a quantity of greaſy offenſive matter. Upon farther examination, the bone was found to be bare, and carious. I removed ſuch a portion of ſcalp, as brought the whole into view. The natural texture of the bone was deſtroyed, and in it were ſeveral holes, through which a probe might eaſily be paſſed, and from which matter was diſcharged in ſuch manner, and with ſuch motion, as plainly proved, that it came from within the cavity of the ſkull.

She remained in the hoſpital until the middle of March; during which time no alteration appeared in any part of the bare bone.

The affairs of her family now required her to be at home. She was in perfect good health; was diſcharged from the hoſpital; and as ſhe lived very near to me, one of my young gentlemen undertook to take

care

care of her. On the twenty-eighth of March 1764, a ſmall part of the bare bone came away, and left the dura mater covered by an healthy incarnation; and on the twelfth of April following, the whole remainder, being about a third part of the parietal bone, did the ſame. From firſt to laſt ſhe had no kind of uneaſineſs, and the ſore healed without any trouble.

CASE XVI.

IN that ever memorable defence, made by Capt. Gilchriſt, on board (as I think) the Southampton man of war, againſt a moſt ſhameful ſuperiority of French force; a ſailor received a ſevere blow on his head by a large ſplinter; a ſmall wound and a conſiderable bruiſe were the immediate conſequence; but they were ſo ſoon well, that the man did duty in a few days. At about ſeven weeks diſtance from the time of the accident, he began to complain of great pain in his head; which pain in a few days rendered him ſo incapable, that he was put into the hoſpital at Goſport. He remained there about three weeks, frequently but not conſtantly in pain; and during that time had three or four fits, like epileptic ones.

He was now ſent to St. Bartholomew's hoſpital, and put under the care of Dr. Pitcairn, by whoſe order he was bled, purged, and took ſeveral medicines. The man having one day mentioned the circumſtance of the blow, the doctor deſired that I might examine him.

There was not the leaſt degree of ſwelling or inflammation, no mark or veſtige of a ſcar, nor any elevation of the ſcalp, or fluctuation of fluid under it. While I was examining his head, he had a ſlight attack of ſpaſm; but on my deſiſting, he became eaſy and tranquil.

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The circumſtance of this attack, while I was preſſing upon the part did not at that inſtant ſtrike me, as worthy notice, but upon reflection it appeared much ſo. The next day I made the ſame experiment, with the ſame effect; that is, upon hard preſſure he became convulſed, which convulſion ceaſed upon removing the fingers, but was followed by a rigor. On the following day I ventured to repeat the experiment; but the man was ſo immmediately and ſo terribly convulſed, that I determined never to try it again.

I informed his phyſician of all that had paſſed, and we agreed, that conſidering the inefficacy of all that had hitherto been done, and what had lately happened, the moſt probable method of attempting his relief would be, by denuding and perhaps perforating the cranium, in the place where the preſſure produced ſo ſtrange an effect.

The next day I removed a circular piece of the ſcalp, and found the pericranium not of a healthy or ſound colour, nor adherent to the bone; which bone was carious, and had ſeveral ſmall holes in it, through which a ſanies roſe and fell, according to the motion of the blood in the brain. I applied a large trephine, without any regard to the ſuture, and removed a piece of ſkull. During the time of the operation, the poor man ſuffered greatly from ſpaſm; but that over, he became eaſy and quiet.

The dura mater was detached from the ſkull, and had matter on its ſurface; which matter was extremely offenſive. The enſuing night he paſſed ill; and the next day had ſuch a rigor, that I verily thought it was the laſt trouble the man could have. The day after this I found him vaſtly better; the diſcharge from his head had been large, but he had not ſuffered any return either of ſpaſm or rigor, and his principal complaint was extreme lowneſs.

The phyſician preſcribed for him; his medicines agreed well with him, and every thing for ſeveral days wore a favourable aſpect. On a ſudden,

ſudden, he was ſeized with all the ſymptoms of a peripneumony, and, on the third day from that ſeizure, died. No apparent cauſe of miſchief was found either within or on the outſide of the head, the dura mater was well incarned, and no lodgment of matter.

SECT. IV.

Fiſſures, and Fractures of the Cranium, without Depreſſion.

FRactures of the cranium were, by the ancient writers, divided into many different ſorts, each of which was diſtinguiſhed by an appellation of Greek etymology, borrowed either from the figure of the fracture, or the diſpoſition of the broken pieces. Theſe are to be found in moſt of the old books, but as they merely load the memory, without informing the underſtanding, or aſſiſting the practitioner, modern authors have generally laid them aſide.

This kind of injury is diviſible into two general heads, viz. thoſe in which the broken parts keep their proper level, or equality of ſurface, with the reſt of the ſkull, and thoſe in which they do not; or, in other words, fractures without depreſſion, and fractures with.

Theſe two diſtinctions are all which are really neceſſary to be made, and will be found to comprehend every violent diviſion of the parts of the ſkull, (not made by a cutting-inſtrument) from the fineſt capillary fiſſure, up to the moſt complicated fracture: for fiſſures and fractures, differing from each other only in the width of the breach, or in the diſtance of the ſeparated parts, and the diſpoſition of broken pieces, in large fractures, being ſubject to an almoſt infinite variety, diſtinctions, and appellations drawn and made from theſe circumſtances, might be multiplied to even three times the old number, without

imparting

imparting the ſmalleſt degree of uſeful knowledge to the man, who ſhould be at the pains to get them by heart.

What are the ſymptoms of a fractured cranium? is often aſked; and there is hardly any one who does not, from the authority of writers, both antient, and modern, anſwer, vomiting, giddineſs, loſs of ſenſe, ſpeech, and voluntary motion, bleeding at the ears, noſe, and mouth, &c. This is the doctrine of Celſus, which has been moſt invariably copied by almoſt all ſucceeding authors, and implicity believed by almoſt all readers*.

The ſymptoms juſt mentioned do indeed very frequently accompany a broken ſkull, but they are not produced by the breach made in the bone; nor do they indicate ſuch breach to have been made. They proceed from an affection of the brain, or from injury done to ſome of the parts within the cranium, independant of any ill which the bones compoſing it may have ſuſtained. They are occaſioned by violence offered to the contents of the head in general; are quite independant of the mere breach made in the bone; and, either do, or do not accompany fracture, as ſuch fracture may happen to be or not to be complicated with ſuch other ills.

They are frequently produced by extravaſations of blood, or ſerum, upon, or between the membranes of the brain; or by ſhocks, or concuſſions of its ſubſtance, in caſes where the ſkull is perfectly intire and unhurt. On the other hand, the bones of the ſkull are ſometimes cracked, broken, nay even depreſſed, and the patient ſuffers none

* "Igitur ubi percuſſa eſt calvaria, protinus requirendum eſt, num bilem is homo vomuerit, num oculi ejus obcæcati ſint; num per nares, aureſve ſanguis ei effluxerit; num conciderit; num ſine ſenſu quaſi dormiens, acuerit? &c. hæc enim *non niſi oſſe fracto eveniunt.*"

LE DRAN.

of theſe ſymptoms.† In ſhort, as the breach made in the bone is not, nor can be, the cauſe of ſuch complaints, they ought not to be attributed to it; and that for reaſons, which are by no means merely ſpeculative. For the practitioner, who ſuppoſes that ſuch ſymptoms do neceſſarily and certainly imply that the cranium is fractured, muſt regulate his conduct by ſuch ſuppoſition, and remove the ſcalp, very often without either neceſſity or benefit; that is, without diſcovering what he looks for: and, on the other hand, if he does find the ſkull to be broken, believing all theſe complaints to be cauſed by, and deducible from, the fracture, he will moſt probably pay his whole attention to that ſuppoſed cauſe, and may think, that when he has done what the rules of his art preſcribe for ſuch caſe, he has done all that is in his power. An opinion not infrequently embraced; and which has been the deſtruction of many a patient: for, as on the one hand, the loſs of ſenſe, ſpeech, and voluntary motion, as well as the hæmorrhage from the noſe, ears, &c. are ſometimes totally removed by, or at leaſt diſappear during the uſe of free and frequent evacuation, without any operation on the ſcalp or ſkull; ſo on the other, as theſe ſymptoms and appearances are not produced by the ſolution of continuity of the bone, they cannot be remedied by ſuch chirurgic treatment, as the mere fracture may require.

If

† "Si læſus inſtar dormientis ſenſus expers deprehendatur; ſi oculi ejus obcæcati fuerint; ſi obmutuerit; ſi bilem vomuerit; ſi animalis inſtar malleo icti conciderit; hæc omnia maximam & ſubitaneam ſignificant cerebri commotionem, perturbationem, ac concuſſionem, *quæ non rara integro* manente, nec ulla *ex parte rupto cranio*, mortem percuſſo adferunt." PET. PAAW.

"Dans les playes de tête, les accidens que les auteurs anciens ont appélles primitifs parcequ'ils arrivent dans l'inſtant meme de la bleſſure, ne ſont nullement des accidens, ni des ſignes, de la fracture ſubſiſtant, mais des accidens, & des ſignes, de la commotion de cerveau." LE DRAN.

If any one doubts the truth of this doctrine, I would desire him to consider the nature, as well as most generally successful method, of treating these symptoms; and, at the same time, to reflect seriously on the operation of the trepan, as practised in simple, undepressed fractures of the skull.

The sickness, giddiness, vomiting, and loss of sense and motion, can only be the consequence of an affection of the brain, as the common sensorium. They may be produced by its having been violently shaken, by a derangement of its medullary structure, or by unnatural pressure made by a fluid extravasated on its surface, or within its ventricles; but never can be caused by the mere division of the bone, (considered abstractedly) which division, in a simple fracture, can neither press on nor derange the structure of the parts within the cranium.

If the solution of continuity in the bone be either produced by such a degree of violence, as hath caused a considerable disturbance in the medullary parts of the brain, or has disturbed any of the functions of the nerves going off from it, or has occasioned a breach of any vessel, or vessels, whether sanguine or lymphatic, and that hath been followed by an extravasation, or lodgement of fluid, the symptoms necessarily consequent upon such derangement, or such pressure, will follow; but they do not follow, because the bone is broken; their causes are superadded to the fracture, and altho' produced by the same external violence, are yet perfectly and absolutely independant of it; so much so, that, as I have already observed, they are frequently found where no fracture is.

The operation of the trepan is frequently performed in the case of simple fractures, and that very judiciously and properly; but it is not performed, because the bone is broken, or cracked: a mere fracture, or fissure of the skull, can never require perforation, or that the dura mater under it be laid bare; the reason for doing this springs from other

cauſes than the fracture, and thoſe really independant on it. They ſpring from the nature of the miſchief which the parts within the cranium have ſuſtained, and not from the accidental diviſion of the bone. From theſe ariſe the threatning ſymptoms; from theſe all the hazard; and from theſe, the neceſſity, and vindication, of performing the operation of the trepan.

If a ſimple fracture of the cranium was unattended in preſent with any of the before-mentioned ſymptoms, and there was no reaſon for apprehending any other evil in future, that is, if the ſolution of continuity in the bone was the whole diſeaſe, it could not poſſibly indicate any other curative intention, but the general one, in all fractures, viz. union of the divided parts. But how can ſuch union be promoted or aſſiſted by perforation? it moſt certainly cannot; and yet perforation is abſolutely neceſſary in ſeven caſes out of ten, of ſimple undepreſſed fractures of the ſkull. Let us for a moment enquire why it is ſo. The reaſons for trepanning in theſe caſes are, firſt, the immediate relief of preſent ſymptoms ariſing from preſſure of extravaſated fluid; or ſecond, the diſcharge of matter formed between the ſkull and dura mater, in conſequence of inflammation; or third, the prevention of ſuch miſchief as experience has ſhewn may, moſt probably, be expected from ſuch kind of violence offered to the laſt-mentioned membrane. Theſe are the only reaſons that can be given for perforating the ſkull, in the caſe of an undepreſſed fracture; and very good, and very juſtifiable reaſons they are, but not drawn from the fracture.

In the firſt caſe (that of an extravaſated fluid within the cranium), the relief from perforation is not only ſometimes immediate, but frequently is not attainable by any other means. This is a ſufficient proof not only of its utility, but of its neceſſity.

In the ſecond, of formation of matter (between the ſkull and dura mater), it is the unicum remedium; there is no natural outlet, by

which

which ſuch matter can eſcape; and the only chance of life is, from the operation.

In the third, that of mere fracture without depreſſion of bone, or the appearance of ſuch ſymptoms as indicate commotion, extravaſation, or inflammation, it is uſed as a preventative, and therefore is a matter of choice, more than *immediate* neceſſity.

Many practitioners, both antient and modern, have therefore diſuſed and condemned it; and have, in caſes where there have been no immediate bad ſymptoms, adviſed us to leave the fracture to nature, and not to perform the operation as a preventative, but to wait until its neceſſity may be indicated by ſuch ſymptoms, as may both require and vindicate it. This is a point of the utmoſt conſequence in practice; and ought to be very maturely conſidered,

They who object to the early uſe of the trephine ſpeak of it as being frequently unneceſſary, and as rendering the patient liable to ſeveral inconveniencies, which may ariſe from uncovering the dura mater, before there is any good, or at leaſt any apparent reaſon for ſo doing. And in ſupport of this their opinion, they alledge many inſtances of ſimple fracture, which have been long undiſcovered, without being attended with any bad ſymptoms; and of others, which, though known and attended to from the firſt, have done very well, without ſuch operation.

They who adviſe the immediate uſe of the inſtrument, do it upon a preſumption, that, in conſiderable violence received by the head, ſuch miſchief is done to the dura mater, and the veſſels by which it is connected to the cranium, that inflammation of the ſaid membrane muſt follow; which inflammation generally produces a collection of matter, and a ſymptomatic fever, which moſt frequently baffles all our art, and ends in the deſtruction of the patient.

What the former aſſert is undoubtedly *ſometimes* true. There have been ſeveral inſtances of undepreſſed fractures of the ſkull, which either from having been undiſcovered at firſt, or neglected, or having been under the care of a practitioner who has diſliked the operation, have done very well without it. This is certainly true, but is not ſufficient to found a general rule of practice upon: in matters of this ſort, a few inſtances are by no means ſufficient to eſtabliſh a precedent: what has been, or may accidentally prove beneficial to a few, may be pernicious to the multitude: that which is found to be moſt frequently uſeful, is what we ought to abide by, reſerving to ourſelves a liberty of deviating from ſuch general rule in particular caſes.

This is one of thoſe perplexing circumſtances, which all writers lament, and all practitioners feel, but which, inſtead of merely complaining of, we ſhould endeavour, as much as in us lies, to correct.

In order to obtain what information we can on this ſubject, we ſhould conſider, firſt, what the miſchiefs are, which may, moſt probably be expected to follow, or which moſt frequently do follow, when perforation has been too long deferred, or totally neglected; ſecondly, what prejudice or inconvenience does really ariſe from, or is thought to be cauſed by the operation itſelf, conſidered abſtractedly; and thirdly, what proportion the number of thoſe who have done well without it, bears to that of thoſe, who may truly be ſaid to have been loſt for want of it; or of thoſe, to whom it might have afforded ſome chance of relief.

With regard to the firſt, I have already obſerved in the caſe of ſimple undepreſſed fractures, whenever the trephine is applied, it muſt be with deſign either to relieve, or to prevent ills ariſing from other miſchief than the mere breach in the bone; which breach, conſidered ſimply, and abſtractedly, can neither cauſe ſuch ills, nor be relieved by ſuch operation. One, and that the moſt frequent of theſe miſ-

chiefs

chiefs is, the inflammation, detachment, and ſuppuration of the dura mater, and conſequently the collection of matter between it and the ſkull; a caſe, of all others attending wounds of the head, the moſt preſſing, the moſt hazardous, and the leaſt within our power to relieve. On this ſubject, I have expreſſed my ſentiments ſo much at large, under the preceding article *contuſion*, that it is needleſs to repeat them here. I ſhall therefore take the liberty of referring the reader back to that, and only remind him of a circumſtance well worth his attending to, viz. that there are no immediate, or early marks or ſymptoms, whereby he can certainly know, whether ſuch kind of miſchief is done or not; and that when ſuch complaints come on, as indicate that ſuch miſchief has been received, although the operation is all that is in our power to do, yet it is very frequently unſucceſsful.* Indeed the only probable method of preventing this evil ſeems to

* The ſtate of the dura mater, under ſimple fractures and fiſſures of the cranium, has been very nicely obſerved, and very juſtly deſcribed, by ſome of the beſt writers of antiquity.

" Si ad cerebri membranam uſque pervenerit fractura, non rademus, ſed agnoſcere co-
" nabimur utrum membrana ab oſſe receſſerit, an affixa permaneat. Si enim ipſa manet,
" inflammatio nulla infeſtat vulnus, & pus coctum apparet. Si ceſſerit membrana, au-
" gentur dolores, et febris ſimiliter; os alium ſumit colorem; pus tenue, & crudum
" effertur; & ſi medicus negligenter rem tractat, nec *perforatione* utitur, hoc graviora
" ſymptomata aboriuntur; nempe bilis vomitus, convulſio, mentis delirium, & febris
" acuta." PAULUS ÆGINETA.

" Dico debet dari ſignum fracturæ, a qua removeatur panniculus groſſus. In primo
" debes ſcire diſpoſitionem ſyphae; utrum eſt adherens, an non; videlicet, ſi adhæſerit
" oſſi non fiet in vulnus apoſtema calidum; & licet accidit, modicum erit; ærugo ma-
" nebit de eo modica; & putredo erit digeſta. Sed ſi fuerit remotus, vehementiores
" erunt dolores, & febres, mutabitur color oſſis, & corrumpetur, & manebit de eo pu-
" tredo tenuis." RHAZES.

" Si rima ſit in ſuperficie, cerebri membrana non abſcedente, eadem adhibeatur, quæ ad
" os nudatum demonſtrata eſt: cerebri vero membrana abſcedente & humore ibi collecto,
" poſt primos curationis dies ad terebram properandum eſt," &c. ORIBASIUS.

to be, the removal of ſuch a part of the ſkull, as by being broken appears plainly to have been the part where the violence was inflicted; and which, if the dura mater becomes inflamed, and quitting its connexion ſuppurates, will, in all probability, cover and confine a collection of matter, for which nature has provided no outlet. This I take to be, not only the beſt, but the only good reaſon, for the *early* uſe of the trephine in ſimple undepreſſed fractures of the ſkull: and I muſt add, that it appears to me to be fully ſufficient to vindicate and authoriſe it. That it frequently fails of ſucceſs, is beyond all doubt; the extent and degree of the miſchief being too great for it to relieve; but that it has preſerved many a life, which muſt have been loſt without it, I am as well ſatisfied of, as I am of any truth, which repeated experience may have taught me.

In matters of this ſort, poſitive proof and conviction are not in our power; all that we can do is, by making a compariſon of the conduct and event of a number of ſimilar caſes, to come as near to truth as we can, and to get probability on our ſide.

The ſecond conſideration which I propoſed to be made was, what miſchief, or inconvenience may moſt reaſonably be ſuppoſed to follow, or to proceed from the mere operation conſidered abſtractedly. They who are averſe to the uſe of it, as a preventative, alledge that it occaſions a great loſs of time; that it is frequently quite unneceſſary; and that the admiſſion of air to the dura mater, as well as the laying of it bare, is neceſſarily prejudicial.

The former of theſe is undoubtedly true; a perſon whoſe ſkull has been perforated, cannot poſſibly be well (that is, cured) in ſo ſhort a ſpace of time, as one who has not undergone ſuch operation; ſuppoſing ſuch perſon to have ſuſtained no other injury than the mere fracture; and if the majority of the people, whoſe ſkulls are broken, were ſo lucky as to ſuſtain no other injury, that is, if no other miſchief was in

theſe

theſe caſes in general done to the parts contained within the ſkull, the objection to perforation would be real, and great, and the operation a matter of more ſerious conſideration. But this is ſeldom, too ſeldom the caſe; by much the larger number of thoſe, who ſuffer a fracture of the ſkull, are injured with regard to other parts, and labour under miſchief of another kind, additional to the fracture; that is, the parts within the cranium are injured as well as the cranium itſelf. This being the caſe, the loſs or waſte of a little time ceaſes to be an object of ſo great importance. The hazard, which it is ſuppoſed may be incurred from laying bare the dura mater, is indeed a matter of ſome weight, ſo much ſo, that it certainly ought not to be done, but for very good reaſons; and yet, although I am clearly of this opinion, I think that I may venture to ſay, that let the ſuppoſed hazard be what it *may*, it cannot in the nature of things, be, by any means equal, to that which *muſt* be incurred by not doing it, when ſuch operation becomes neceſſary. In ſhort, if we would form a right judgment of this point, the queſtion concerning it ought to ſtand thus; Is the chance of ill which *may* proceed from merely denuding the dura mater, equal to that, of its being ſo hurt by the blow, as to inflame, and ſuppurate? Or is the miſchief which may be incurred by mere perforation of the ſkull, equal to the good which it may produce? Theſe queſtions, let thoſe who have ſeen moſt buſineſs of this kind, and who are therefore the beſt judges, conſider and determine. For my own part, I have no doubt, that although by eſtabliſhing it as a general rule to perforate in all caſes, ſome few would now and then be ſubjected to the operation, who might have done very well without it; yet, by the ſame practice, many a valuable life would be preſerved, which muſt inevitably be loſt without it, there being no degree of compariſon between the good to be derived from it, when uſed early, as a preventa-

tive, and what may be expected, if it be deferred till an inflammation of the dura mater and a ſymptomatic fever make it neceſſary.

The third conſideration, viz. what proportion the number of thoſe who have eſcaped without the operation, bears to that of thoſe who have periſhed for want of it, is in great meaſure included in the two preceding; at leaſt the determination of them, muſt alſo determine this.

My own opinion muſt, till I find reaſon to alter it, be the rule of my own conduct; and though I would not by any means pretend to obtrude the former on any one, yet I think it in ſome meaſure incumbent upon me in this place to give it.

The number of caſes of this kind, which are neceſſarily brought into a large hoſpital, ſo ſituated as Bartholomew's is, in the middle of a populous city, where all kinds of hazardous labour are carried on, has enabled me to make many obſervations on them; and although I have now and then ſeen ſome few of them do well without the uſe of the trephine, yet, the much greater number, whom I have ſeen periſh with collections of matter within the cranium, who have not been perforated, and for whom there is no other relief in art or nature, has, I muſt acknowledge, rendered me ſo very cautious and diffident, that although I will not ſay, that I would always and invariably perform the operation, in every caſe of ſimple fracture; yet the caſe muſt be particularly circumſtanced, the proſpect much fairer than it moſt frequently is, and my prognoſtic delivered in the moſt guarded apprehenſive manner, when I omit it. I ſhould be ſorry to be ſo miſunderſtood, as to have it ſuppoſed that I mean to ſay, that I think the denudation of the dura mater a matter of abſolute indifference, or that no ill can proceed from it; this, I know is a point concerning which the beſt practitioners have differed, and concerning which, we ſtill ſtand in need

of information; but I think I may venture to ſay, what is fully to my preſent purpoſe, viz. that inlarging the opening of a fracture, by means of a trephine, will not produce or occaſion much riſque or hazard, additional to what muſt be occaſioned by the fracture itſelf: that has already let in the air upon the membrane, and therefore that conſideration is, at leaſt in ſome degree, at an end, and the principal point to be determined ſtill remains the ſame, viz. whether upon a ſuppoſition, that the dura mater may poſſibly not have been ſo injured as to inflame and ſuppurate in future, the operation ought not to be practiſed, as a preventative, but, on the contrary, ought rather to be deferred until worſe ſymptoms indicate the neceſſity of it? or whether it ought in general to be performed early, in order, if poſſible, to prevent and guard againſt very probable, as well as very terrible miſchief?

I know that it may be ſaid, that a fracture, if of any conſiderable ſize, or whoſe edges are fairly diſtant and unconnected, will of itſelf make ſome way for diſcharge from within; and ſo it certainly may, and does, in the caſe of an effuſion of fluid blood; but even in this it very ſeldom proves ſufficient for the purpoſe. But does not the diſtant ſeparation of the edges imply greater ſeparation of the attaching veſſels of the dura mater? and does not experience too often prove this to be the caſe? In truth, the great advantage which is ſometimes derived from conſiderable fractures, is moſt frequent in thoſe caſes where portions of bone are ſo looſe as to be removable, which removal of bone ſtands in place of perforation, and makes much more for the neceſſity of the operation in other caſes than againſt it, if properly conſidered.

I may poſſibly be told, that Hildanus, Wiſeman, and others of great and deſerved reputation, have been of the former opinion. I know they have; and when I differ from theſe, or any other good authority, I hope that I ſhall always do it with caution and diffidence; but I

hope alſo, that I ſhall never heſitate to differ from any, and every authority, when I think that I have truth on my ſide, and the good of mankind in my view. The above-mentioned writers, together with almoſt all their contemporaries, had, in ſimple fractures of the ſkull, but one contemplation, the extravaſation of blood; this they regarded as the cauſe, both of the early ſymptoms, and of the late ones; conſidering it, as acting either by preſſure or putrefaction; and therefore, when there was no immediate ſign of ſuch extravaſation, from the effects of preſſure, they ſaw no neceſſity for early, or immediate perforation. But had they not forgotten the univerſal adheſion of the dura mater to the cranium; had they not, without any, or indeed contrary to all authority from anatomy, formed to themſelves an erroneous idea of the diſpoſition of thoſe parts, with regard to each other*; had they conceived rightly of the conſequences of an inflammation and detachment of that membrane, I am much inclined to believe, that they would have altered their opinion, and not in general have left penetrating fractures of the ſkull to nature; although they had, in ſome meaſure, the authority of Celſus for ſo doing †.

Before

* Some of the writers of this time, ſpeak of the ſuppoſed vacuity between the dura mater and ſkull, as being calculated for the reception of extravaſated fluid, in caſe of accident: which opinion reminds me of that of a much later writer, who ſays, "that the os "unguis was made ſo thin, for its more eaſy perforation in the operation of the fiſtula lacrymalis."

† "In omni vero fiſſo fractove oſſe, protinus antiquiores medici, ad ferramenta ve-"niebant quibus id excideret. Sed multo melius eſt ante emplaſtra experiri, quæ cal-"variæ cauſa componuntur," &c. CELSUS.

Whoever has an inclination to amuſe himſelf with the different opinions of different writers on the ſubject of perforating, or not perforating, will find them in Palfyn, Rohalt, and many others.

But

Before I enter upon the account of the preſent and moſt proper method of treating ſimple undepreſſed fractures of the ſkull, it may, perhaps, be not amiſs to make a ſhort enquiry into the opinions which our remote anceſtors have delivered down to us on this ſubject, to take a curſory view of their intention and conduct, and to examine, whether the difference between their practice, and ours be well grounded or not; it being neither antiquity nor novelty, but utility only, which can demand our regard.

That extravaſation of blood, and formation of matter, between the ſkull and membranes of the brain, were the two principal cauſes of bad ſymptoms, and of death, in fractures of the cranium, and that the only rational method of obtaining relief in either caſe was, by making ſuch an opening in the bone as would give diſcharge to the ſaid fluids, was full as well known to our anceſtors as to us. Their intention and ours therefore were eſſentially alike, and the material difference between our conduct and theirs conſiſts in the manner in, and the inſtruments by, which we endeavour to execute ſuch intention. If the breach in the bone was ſmall, and no ſymptoms of immediate extravaſation attended, their principal apprehenſion was that the ſanies, or matter, which they ſuppoſed muſt neceſſarily be excreted from the edges

But that the frequent ill effects of neglecting this operation were not unattended to by many, the following quotation, taken from a number of ſimilar ones, may evince.

"Et ſcias, ſicut volunt veteres, quod non eſt excuſatio ab inciſione, & remotione "cranii, cum in eo penetrans fractura ſit; & hæc propter duo; primo quod os capitis, ſi- "cut dictum eſt, debilem facit porum. Secundo, quia ſi, oſſe jam reſtaurato, acciderit "interius (quantocunque modice) generatio ſaniei, vel alicujus humoris ſuperflui expel- "lendi, quomodo, jam reſtaurato oſſe, poſſet expelli," &c.

"Primum notabile eſt iſtud, quod in fractura cranii debes prohibere apoſtema, ne acci- "dat in cerebro aut in panniculis, &c. Tertium, notabile ſit iſtud; quod ſi intentio me- "dici ſolum eſſet, in occupatione ſolutionis continuitatis, vel fracturæ, ſtante apoſte- "mate, multa mala accidentia poſſent conſequi, ut corruptio panniculi, febris, apople- "xia, rigor, &c." BERTAPAL.

edges of the fracture, would drop down, lodge, and be collected on the ſurface of the dura mater.

To prevent this evil, they endeavoured to enlarge the fracture by abraſion of its edges, by means of ſcalpra, or rugines. Theſe ſcalpra were many in number, and various in their ſize and figure, according to the opinion or whim of the practitioner. Figures of theſe are to be ſeen in many writers; in Andreas a Cruce, in Scultetus, in Fabritius ab Aquapendente, in Berengarius, &c. &c. &c. * But whoever examines them, and attends to their propoſed uſe, will find them liable to great objection; he will find that the uſe of them muſt be irkſome to the patient, tedious to the operator, and unequal to the end propoſed. That by ſuch kind of inſtrument the opening of a ſmall fracture may be enlarged, is beyond all doubt; but if the breach be at all large, or of any length, ſuch method of inlarging it muſt at beſt be a very operoſe one; it muſt jarr, and ſhake the patient's head immoderately; if executed unſkilfully, or inattentively, it muſt be attended with hazard of wounding the dura mater; and when finiſhed, could not properly anſwer the purpoſe for which it was deſigned.

Of theſe defects, ſome of the practitioners were in ſome meaſure ſenſible; and therefore, if the fracture was of ſuch ſize, or ſo circumſtanced, that theſe ſcalpra abraſoria would moſt probably prove inſufficient, that is, if the accident was produced by ſuch force, or attended with ſuch degree of contuſion, as to render it probable that the parts within were injured, they did not then depend upon this method by abraſion, but had recourſe to others, by which they removed a portion

* "Ex fracturis vero quæ ad cerebri membranas pervenerunt, ſi ſimplex fractura ſit, anguſtis ſcalpris utendum; ſin cum contuſione aliqua, quod contuſum eſt excidi debebit; idque vel terebellis prius in circuitum foratum, ac mox ſcalpris admoti, vel protinus ab initio cycliſcis." GALEN.

portion of the cranium.* In the execution of this purpoſe alſo, they found themſelves ſubject to many inconveniences, ariſing partly from the awkward and unmanageable form and make of their inſtruments, and partly from the inartificial manner in which they applied them.

Terebræ, and terebellæ, of various ſorts, figures and ſizes, the cycliſcos, or ſcalper exciſorius, and a variety of modioli were invented, and uſed for this purpoſe, figures of which may be ſeen in Vidus Vidius's comment on Hippocrates de vuln. capit. in Peter Paaw on the ſame; in Andreas a Cruce's officina; in Albucaſis and others.

If the piece of bone intended to be removed was larger than could be comprehended within the modiolus then in uſe, and which was a very defective inſtrument in many reſpects, the operation was performed by means of terebræ; which operation was ſtill more coarſe, more fatiguing, and more hazardous than that by the mere ſcalpra.

The piece intended to be taken away was ſurrounded with perforations, made at ſmall diſtances † from each other, and then either the ſcalper

* "In iis quæ uſque ad cerebri membranam diviſa ſunt, ſi ſola rima ſit, iiſdem radulis "utendum; ſi colliſio aliqua una ſit, terebris exſcindere colliſum oportet, ſcalpris adhi-"bitis." ORIBASIUS.

† "Miniſtri juxta aſſideant, quorum unus caput læſi contineat, alter, opportuna mi-"niſteria faciat. Aurium foramina lana coacta obturanda ſunt, ne ſonitu in exciſione "terreatur. His factis, infigendus calvariæ eſt mucro acutus terebræ; qua læſum os "colorem mutavit, juxta integrum; deinde lente habena terebram convertere debemus, "donec incifo oſſi mucro inſiſtat; ac tum citatius circumagere oportet habena terebram "convertente, donec mucro in ſpatium inter duplex os deſcendat; ubi autem foramen "altius adactum ſit ultra craſſitudinem ſpatii inter duplicem teſtam oſſis quod perforatur, "tum terebra multo circumſpectius convertenda eſt, ne repente deſcendens cerebri mem-"branam violet. Cum jam terebra adacta fuerit, ut vel conjectura deprehendatur totam "oſſis craſſitudinem eſſe perforatam, vel perparum ſolidæ ſedis infra relictum, tunc is "qui operatur, altitudinem deguſtet demiſſa tenuis acus obtuſa parte; ac ſi quid conti-"nuæ ſedis etiam reliquum ſit, deprimendus altius terebræ mucro eſt, eaque lente cir-

cumacta,

ſcalper exciſorius or the ſcalprum lenticulatum was introduced, and, by means of repeated ſtrokes with a heavy mallet, was driven through all the interſpaces between each perforation. By theſe means the portion of bone ſo ſurrounded was removed, and the dura mater was laid bare. The tediouſneſs which muſt attend the making ſo many perforations, the diſturbance given to the patient's head, as well by the terebra, as by the mallet and chizel, the hazards of wounding the membranes of the brain, and the coarſeneſs and unhandineſs of the whole proceſs, are too obvious to need a comment *.

Of

" cumacta, ſolidum os perforandum. Eadem quoque facienda ſunt in aliis foraminibus, " donec rima in ambitu perforata ſit. Septa vero media inter foramina ſatis habent ſpa- " tii, fere quantum ſpecilli anguſti averſa pars eſt. Factis foraminibus, tum ad exci- " ſionem, quæ dicitur, veniendum eſt, ut exciſis tum foraminibus tum mediis, læſa oſſa " removeantur." ORIBASIUS.

" Modus autem perforationis eſt, ut figas unum trypanorum (terebrarum) ſuper os in " circuitu, & revolvas ipſum intra manus tuas, donec ſcias quod os terebratum eſt; de- " inde fiat permutatio ad alium locum: & ſic permutatio fiat uſque ad ultimum neceſ- " ſitatis. Deinde cum alio inſtrumento, quod dicitur ſpatumen, ab uno foramine uſque " ad aliud os incidatur," &c. BRUNUS Chir. Mag.

" Pone trypanum ſupra os circa ſciſſuram, ubi vis foramen facere, & revolve ipſum " intra manus tuas donec penetret; deinde muta ipſum ad alium locum, & ſic fac tot fo- " ramina, quot ſufficiant; deinde pone ſpatumen in uno foraminum, & levando manum, " ſuperius incidatur terminus, qui eſt inter foramen & foramen, & fac ſic donec ſepa- " ratur os totum." BRUN. Chir. Parv.

* " Quod vero per cycliſcos opus adminiſtratur, ne id quidem omnino vitio caret, " quum quatiat immodice caput, quod potius quietem poſtulat." GALEN.

" At quæ per terebellam ratio quidem fungitur, parum tuta eſt, propterea quod dum " audacius eam tractant, duram meningem non raro violant." GALEN.

" Sæpe ſcalpros pulſantes adeo ut totum cerebrum permoveatur." GALEN.

" Acuta terebra quamplurimas anguſtas perforationes, cranii fracturas ambientes, ra- " dioli craſſitudine equidiſtantes formare ſolent; quod vero inter foramina reſidet, aut " rectis, aut curvis ſcalpris malleolo plumbeo adactis recindere expedit. Lenticulato

" ſcalpro,

1. *Malleus plumbeus.*
2. *Scalpel.* 3. *Meningophylax.*
4. *Scalper planus.* 5. *Scalper cavus.*

GEORGIUS III
BRITISH MUSEUM

Of this moſt of them were ſenſible; they felt the inconveniencies, and dreaded the danger ſo much, as to run into great abſurdities, merely to avoid them. They found that they not only wounded the dura mater, but ſometimes the brain itſelf; and therefore had recourſe to ſuch precautions, as they thought moſt likely to prevent theſe evils. By ſome we are adviſed, not to make the perforation quite through the bone, but to endeavour to leave a thin lamina of it intire. By others, to leave the piece, which the modiolus or terebra had ſurrounded, adhering to the dura mater, to be caſt off by its ſuppuration, leſt the haſty detachment of it ſhould be miſchievous.*

The cautions laid down by Hippocrates and others, concerning the part of the bone whereon to fix the inſtrument, and the great attention which they admoniſh the operator to pay to its execution, all proceed

"ſcalpro, adacto malleolo, id fieri poteſt; *horridus* tamen quidem modus eſt, ac in "opere tardus."

"Scalpra hæc omnia citra malleoli operam nullius momenti ſunt; moventur neceſ-"ſario malleolo adacto, præſertim in rimis, quæ ad diploidem uſque pertingunt; exca-"vant totum os, *forti adhibita percuſſione, non tuto ſed incommode.*" ANDREAS a CRUCE.

"Malleus ad percutiendum lenticulatum debet eſſe de plumbo, ut in parva quantitate "magis ponderet." GUIDO.

"Cavere oportet, ut in terebellæ admotione, ne falleris, verum qua parte craſſiſſimum "os eſſe viſum fuerit, in eam ſemper terebellam admotam adigito." HIPPOCRAT.

"Sæpe accidit, ut terebræ repente adactæ, ob naturalem perforatorum oſſium debili-"tatem, vel tenuitatem, membranam fauciarint." ORIBASIUS.

* "Quod ſi ſtatim initio vulneris inflicti, curationi adhibearis, os ad membranam uſque "ſimul & ſemel exſcindere non oportet, &c. Præterquam quod aliud ſubeſt periculum, "ſi ſtatim ad membranam uſque auferas, ne inter operandum membranam lædas. Sed "inter ſecandum id obſervato, ut poſtquam eo res perducta, ut parum abſit quin uni-"verſum os pertuſum ſit, jamque os vacillare incipit, ab ulteriore ſectione abſtineas; oſ-"ſique, ut ſponte porro ſecedat, permittas. Namque oſſi, quod ſectum eſt, & ſine ex-"ſectione relictum, nihil detrimenti accidere poteſt."

"Cum itaque terebræ occurrit uſus, ſi ſtatim curationi adhibearis, caveſis ne ad mem-"branam uſque penetrat, verum portio oſſis tenuis relinquenda." HIPPOCRAT.

ceed from the ſame fear. For the ſame reaſon, or from the ſame well-grounded apprehenſion, it will be found that many of the beſt practitioners endeavoured to furniſh their perforating inſtruments with ſuch guards or defences as ſhould prevent them from going too deep.*

In Albucaſis, in Andreas a Cruce, and many others, are figures and deſcriptions of modioli, duabus, tribus, vel quatuor alis muniti, of thoſe as well as of terebellæ, called abaptiſtæ, meſpilatæ, torculatæ, &c. the number and variety of theſe is very large, although they are all formed upon the ſame principle, and all calculated for the ſame pur-

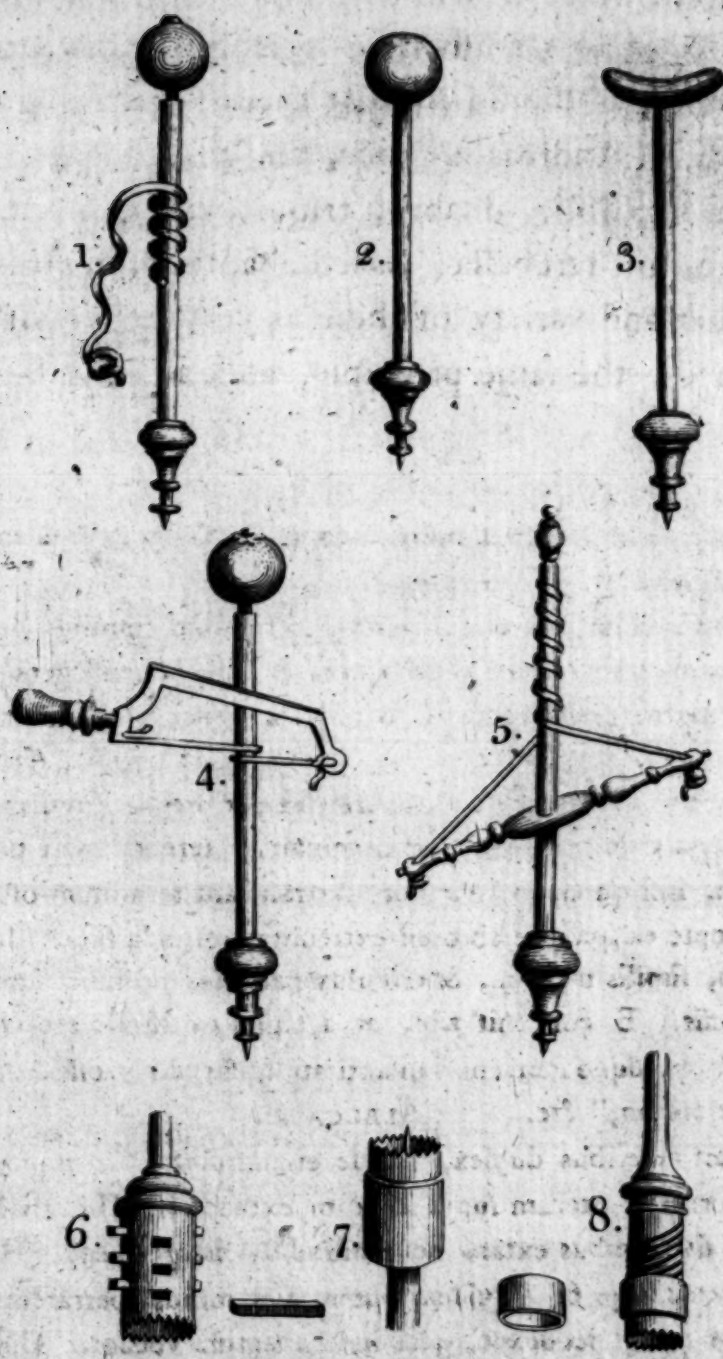
* "Terebellis autem ipſis, ut mergi non poſſunt ſupra cuſpidem, nonnulli ſuperci-
"lium extans efficiunt." GALEN.

"At quia dum terebrum hoc circumagitur, periculum imminet ne membranæ lædan-
"tur, ideo nonnulli quo minus abberrarent, & hoc periculi genus evitarent, terebras
"excogitarunt quæ mergi non poſſunt, & ob id a Græcis abaptiſta dicuntur."
ANDREAS a CRUCE.

"Si autem os forte durum eſt, tunc oportet ut perfores in circuitu ejus, antequam ad-
"miniſtres inciſoria cum terebris, quæ nominantur terebræ non profundantes; & non
"nominantur ita, niſi quoniam ipſæ non pertranſeant terminum oſſis, ad illud quod eſt
"poſt ipſum, propterea quod terebro eſt extremitas rotunda ſuper illud, quod eſt ſub ca-
"pite ejus acuto, ſimilis margini, & circulus parvulus prohibet ſubmergi & pertranſire
"ſpiſſitudinem oſſis. Et convenit tibi, ut accipias ex iſtis terebris numerum multum,
"quorum unum quodque conveniat quantitati ſpiſſitudinis oſſis, donec præſens ſit tibi
"omni cranio terebrum," &c. ALBUCASIS.

"Modiolus fuit veteribus duplex, eſtque etiamnum hodie vulgaris, tum & qui du-
"plicem habet orbem, alterum ſupra alterum extantem. Hic abaptiſtos Græcis; facit
"namque orbis ſive limbus extans ne profundius mergi queat. Hunc itaque deſcribit
"Galenus 6. meth. cap. 6. Quidem autem quo minus aberrarent, tales terebellas ex-
"cogitarunt quæ mergi nequeant, quas inde abaptiſta vocant. Circumcurrit enim pa-
"rum, ſupra terebellæ ſupercilium circulus alius parvus. Sane expedit complures id
"genus ad manum habere, ob quamcunque cranii craſſitudinem; nam craſſiori longior
"convenit terebra, tenuiori brevior," &c. PET. PAAW in HIPPOCRAT.

"Si autem validum fuerit os, prius illud terebellis abaptiſtis vocatis perforatur. Ejuſ-
"modi vero ſunt quæ paulo ſupra acumen cuſpidis eminentias habent, impedientes ne
"ad cerebri uſque membranam demergi poſſint." PAUL ÆGINET.



1.2.3.4.5. *Guarded Terebræ.*
6.7.8. *Guarded Modioli.*

purpoſe, viz. to perforate the ſkull without wounding the membrane underneath. But whoever will conſider the very different thickneſs of different ſkulls, and of different parts of the ſame ſkull, and at the ſame time reflect on the extreme awkwardneſs of all theſe inſtruments, will immediately ſee, how very little dependance is to be laid on ſuch defences, and how miſchievous the uſe of them muſt very frequently have proved. In ſhort, an attentive conſideration of what our remote anceſtors have delivered down to us on this ſubject may ſatisfy us, that their obſervations on the appearances and ſymptoms of the ills attending this kind of miſchief, that is, fractures of the cranium, were in general extremely juſt and true, (perhaps, more ſo than thoſe of many moderns) that their curative intention, or method of aiming at the relief or cure of ſuch ills, was rational and juſt; but, that the inſtrumental part of their art was ſo deficient, ſo awkward, and ſo unhandy, that they were thereby, not only in general prevented from accompliſhing the good they intended, but were not infrequently driven into almoſt unavoidable miſchief.

Reduction of the number of inſtruments to be uſed in an operation, and an extreme ſimplicity and plainneſs in thoſe which may be required, are a part of the merit of modern ſurgery.

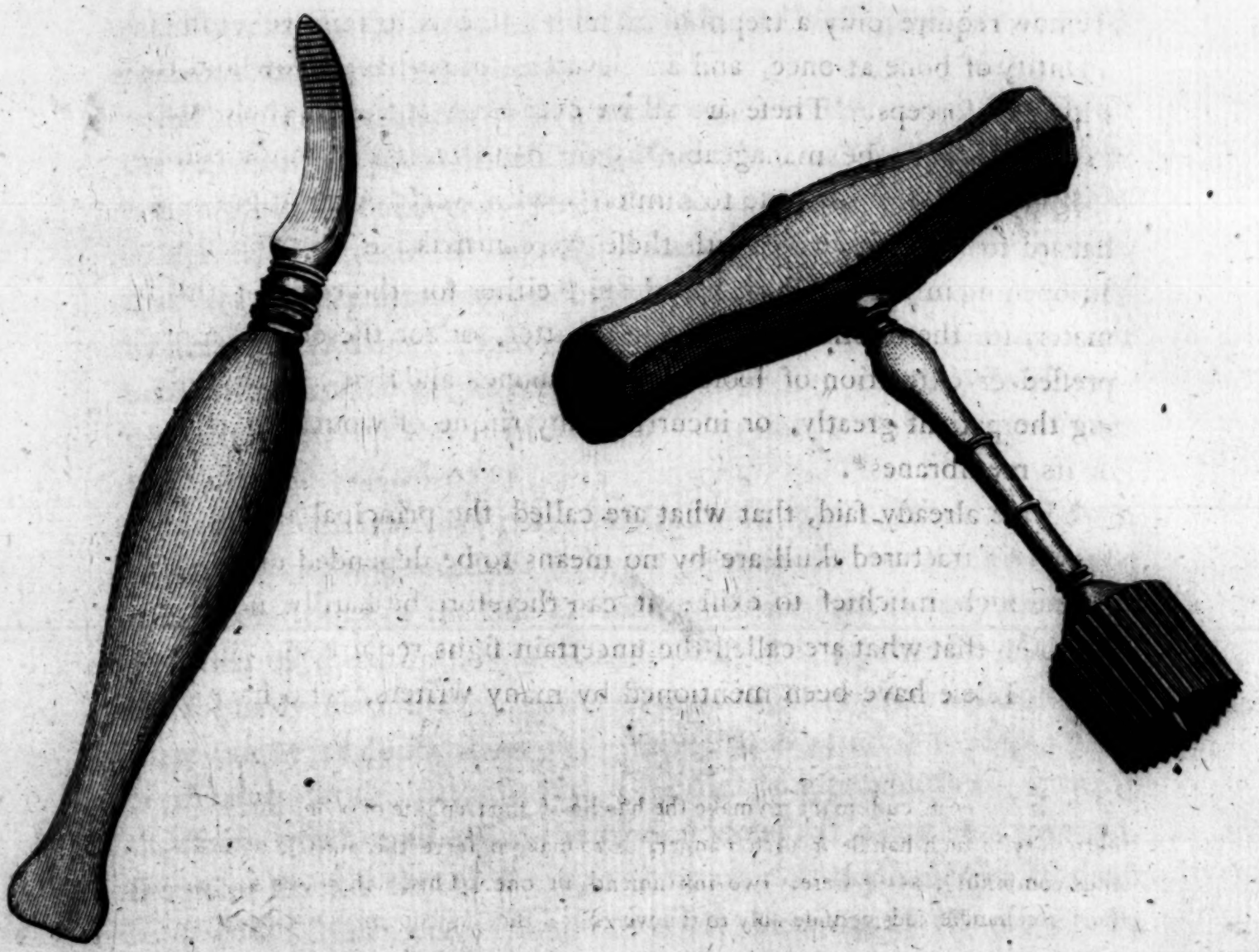
The majority of the inſtruments, with which our anceſtors perforated the cranium, were contrived to make way for the admiſſion of other inſtruments; ſuch as the ſcalper exciſorius, the cycliſcos, the ſcalprum lenticulatum, &c. with which they removed a portion of bone. Even the modioli, which were uſed by them, were ſo ſmall in the diameter of the ſaw, as to take away a very ſmall piece at each application; which circumſtance neceſſarily leſſened the benefit which might be expected from the uſe of it, and rendered its repetition more fre-

quently neceſſary than it needed to have been, if it had been made larger.

Inſtead therefore of that ſtrange variety, and multtplicity of inſtruments, which I have already mentioned to have been uſed by them, we now require only a trephine of ſuch a ſize as to remove a ſufficient quantity of bone at once, and an elevator; or perhaps, now and then, a pair of forceps. Theſe are all we ever can want; and theſe may be ſo made, as to be manageable by the hand of any man of common judgment, with great eaſe to himſelf, with very little fatigue and no hazard to the patient. With theſe we can make as large or as ſmall an opening in the ſkull as we pleaſe; either for the relief of the dura mater, for the diſcharge of blood or matter, or for the elevation of depreſſed or extraction of looſe pieces of bone, and that without diſturbing the patient greatly, or incurring any riſque of wounding the brain or its membranes*.

I have already ſaid, that what are called the principal and diagnoſtic ſigns of a fractured ſkull are by no means to be depended on, as indicating ſuch miſchief to exiſt; it can therefore be hardly neceſſary to obſerve, that what are called the uncertain ſigns require our regard ſtill leſs. Theſe have been mentioned by many writers, who have copied each

* It has been cuſtomary to make the handle of the trephine of iron, and to form the extremity of ſuch handle in ſuch manner, as to make it ſerve the purpoſe of an elevator; thus combining, as it were, two inſtruments in one. This, I think, is a great fault; ſuch iron handle adds conſiderably to the weight of the inſtrument, and that in a wrong part of it; and thereby renders it leſs manageable. The handle of this inſtrument ſhould be made of light wood, not too long, and of an octangular figure. Whoever will try the ſame inſtruments, thus differently made, will, I think, be immediately ſenſible of the preference due to the lighter handle. It is almoſt impoſſible for the handle of an inſtrument, whoſe point or extremity is to be worked with, to be too light. It is no uncommon thing to ſee couching needles, and inſtruments of like kind, laden with heavy bone handles, the inconvenience of which is too obvious to mention.



each other; ſuch are, the holding a ſilk or horſe-hair tight between the grinding teeth and the hand, and the making it vibrate by ſtriking on it; the biting an hard body, and attending to the pain produced by ſuch action, with ſeveral other of like ſort; which, not to mention that they imply the patient to be ſenſible and intelligent, are ſo truly equivocal as to deſerve no notice *.

All conſiderations alſo, which are drawn from the manner in which the violence was given or received, from the weight or kind of weapon or body inflicting it, from the force of the blow, the height of the fall, &c. are all equally fallacious; for every body knows, that very terrible ſymptoms and conſequences are ſometimes produced by accidents ſeemingly ſlight; and, on the contrary, that people eſcape unhurt, from what might reaſonably have been expected to have proved prejudicial to them. In ſhort, nothing but the ſight and touch are to be at all depended upon.

If the integuments are not wounded, or if the wound made in them be ſo ſmall as not to admit a proper examination of the bone, and the circumſtances of the caſe are ſuch as render ſuch inquiry neceſſary, a portion of the ſcalp ſhould be removed. The manner of doing this has formerly been the occaſion of much difference of opinion; but there can be no doubt about the greater propriety of removing a piece of the ſcalp for this purpoſe, by an inciſion in a circular form, it being that form which muſt afford the cleareſt view. If there be no wound, the point ſtricken ſhould be made the center of the inciſion; if there be a wound, ſuch wound ſhould be made the center of the piece to be removed;

* "Item percutiatur caput cum levi bacculo ſicco, de ſalice aut de pino, & pone aurem tuam apud caput; & ſi ſanum eſt, tunc audies ſonum ſanum; ſi fractum aut ſciſſum, audies ſonum mutum." LANFRANC.

removed; and ſuch piece, ſhould always be of ſize ſufficient to render the application of the trephine eaſy.*

If the ſcalp be wounded, and the wound be large enough to render the fracture viſible, the courſe of that muſt be the operator's direction in making his incision; and, if the ſkin be much torn and bruiſed, or ſpoiled, it will generally be found adviſeable to take away all that is ſpoiled at once; as the removal of it will add very little to the patient's pain, or the length of the cure, and the leaving it on, in this ſtate, may be attended with great future inconvenience.

Scalping (as it is called) ſhould always be executed with a knife, and that knife ſhould be ſo held as to cut through the ſkin and pericranium, in a perpendicular manner, down to the bone at once, that the ſize of the bare bone may be fully equal to that of the wound in the ſcalp.

It is hardly neceſſary to inſert a caution againſt preſſing hard with the ſcalping knife, in the caſe of large fractures, attended either with great ſeparation of the broken edges, or with looſe pieces, the danger is ſo obvious. And it is alſo as obvious, that there can be but one method of avoiding ſuch hazard, viz. by removing the ſcalp from, or rather making the incision in a part beyond, the fracture, and where the bone is firm and ſtable. By theſe means, not only the riſque of hurting the membranes and brain will be avoided, but the whole miſchief will be more fairly and clearly brought into view; a thing, which ſooner or later muſt be done, and is always beſt done at firſt. No part of the ſcalp ſhould be wantonly or unneceſſarily cut away: but

* It may perhaps be remarked, that through the whole of this treatiſe, whenever I have occaſion to ſpeak of the operation of perforating the ſkull, I mention the trephine only, and take no notice of the trepan, the inſtrument uſed by moſt of our immediate fathers, and ſtill in uſe through almoſt all France; my reaſon is, that the latter is an unmanageable one, and liable to moſt of the hazard and inconvenience attending the terebræ and terebellæ.

but it ſhould always be remembered, that this operation is, and ſhould be performed, with intention to bring, if poſſible, the whole fracture into ſight; and that whatever falls ſhort of fulfilling ſuch intention (if practicable) is wrong, not only, as it does not immediately anſwer the purpoſe for which it is intended, but it generally puts the patient under a neceſſity of undergoing the ſame pain and trouble a ſecond time.

When the cranium is laid bare, it may not be improper to remark, that writers in general have cautioned us to beware of miſtaking either a ſuture, or the impreſſion of a veſſel on the ſurface of the bone, for a fracture: I ſay, that they have in general cautioned us not to miſtake one of theſe for the other, but have not informed us of the mark by which we may be enabled to make the neceſſary diſtinction, although ſuch mark is almoſt conſtant and invariable. From the track of a fracture, or fiſſure, the pericranium is always found looſe and detached; whereas to the arterial ſulcus, and to the uninjured ſuture, it is always adherent; beſides which, the edges of a fracture will always be found rough to the probe or finger, and the ſulcus always ſmooth; not to add, that the diſpoſition of the ſutures is pretty certain, and their appearance in general not extremely like to that of a fracture.

When the ſcalp is much bruiſed, or wounded, ſuch wound or bruiſe points out the place from whence the piece ſhould be removed, in order to examine the bone; and, even although no fracture ſhould be found, is an authority and vindication of ſuch operation, eſpecially if the general ſymptoms were at all urgent; ſuch ſymptoms implying miſchief ſomewhere, and ſuch external mark rendering it clear, where the external violence cauſing ſuch miſchief was inflicted. But all the ancient, and many of the modern writers, ſpeak of a particular kind of fracture, in which the ſcalp covering it is perfectly fair and uninjured; and this they call a contra-fiſſure. By the general account, it is pretty clear,

clear, that the majority of thoſe who have ſpoken of this kind of fracture have ſuppoſed that the breach made in the bone was moſt frequently in the part of the cranium diametrically oppoſite to that which received the blow; this the term contra-fiſſure implies, and this they moſt certainly do in general mean ſhould be underſtood by it, as appears by their directing us to examine and to remove the oppoſite part of the ſcalp, if no miſchief be found under the part ſtricken, and the patient labours under what are called the ſymptoms of a fractured ſkull.

If the ſymptoms of a fractured cranium were certain, and to be depended upon, this accidental circumſtance, of a breach in the bone having been now and then found in a diſtant, or even in the oppoſite part, might be an inducement to look for ſuch miſchief there, when it is not found under the part ſtricken. A fracture, we might then ſay, there is ſomewhere; and it having, in ſome inſtances, been found in the oppoſite part of the head, it might be right to look for it there. But, as what generally paſs for, and are called the ſymptoms of a fractured ſkull, are by no means to be depended upon, as indicating ſuch complaint to exiſt any where, as they are producible by concuſſion, by extravaſation, by contuſion, &c. and are frequently found where the ſkull is intire and unhurt, they cannot be deemed a ſufficient authority for removing the ſcalp where no apparent mark of violence is left. The ſmalleſt degree of wound or bruiſe will, in caſes where the ſymptoms are urgent, vindicate the removal of ſcalp from ſuch part; but where there is no local indication where to operate, I cannot ſee any vindicable reaſon for operating at all.*

The

* Morgagni, in his book de Cauſis & Sedibus, has very juſtly obſerved, "that if by "contra-fiſſure was meant a breach in that part of the cranium which is diametrically "oppoſite to the part wounded or bruiſed, (as ſome have affirmed) there could be none "of

The chirurgical intention in perforating the ſkull, in the caſe of ſimple undepreſſed fractures, is, as I have already obſerved, either to give immediate diſcharge to fluid, ſuppoſed to be extravaſated between the cranium and membranes of the brain; or to obviate, and prevent ſuch ills, as may moſt probably be expected to ariſe from the contuſion cauſing the fracture; or to let out matter already formed in conſequence of the inflammation following ſuch contuſion.

In each of theſe it is moſt probable, that the miſchief, be it which it may, either is or will be ſeated principally under the track of the fracture; and therefore, whenever the trephine is applied for either or any of theſe purpoſes, it ought always to be ſet on in ſuch manner as that the fracture ſhould, if poſſible, traverſe the circle deſcribed by the ſaw, or at leaſt, ſo that the inſtrument might always comprehend the fracture within it.

I am aware that the direction given by moſt of the old writers on this ſubject is very different from what I have mentioned; but the inſtruments with which they operated, were ſo different from ours, and the advantages ariſing from the comprehenſion of the fracture within the trephine are ſo great, and ſo manifeſt, that I muſt take the liberty of inculcating a conſtant attention to it, as to a circumſtance from which great advantages are derivable.

The ſaw or crown of the trephine ſhould never be too ſmall, eſpecially if the patient be full grown; a circumſtance which I thought it

" of that difficulty which they all allow of finding, or that frequent diſappointment in " not finding it at all, ſince an inquiry into ſuch oppoſite part, muſt always have led to " the diſcovery. So that inſtead of the term *oppoſite*, that of *another*, part of the cra- " nium ought to have been uſed." And then the whole of this, which has puzzled ſo many, will amount to no more than what every practitioner muſt know, which is, that we frequently find, in caſes of great violence, that the ſkull has been broken, in a place very diſtant from that which received the blow, and which we are not led to the knowledge of by any apparent external mark.

right to mention, becauſe the inſtrument-makers are very apt to make them ſo.*

The number of perforations which it may be neceſſary to make, can only be determined by the nature of each individual caſe.

If the operation be performed on account of ſuch ſymptoms as ſeem to indicate a bloody extravaſation, and ſo free a diſcharge is produced by one opening, as alleviates or removes the ſymptoms, that one may be all that may be neceſſary; but if the firſt perforation only diſcovers the diſeaſe, and is not followed by ſuch diſcharge as relieves, or removes the ſymptoms, the operation ought to be repeated again and again.

If there be no ſymptoms of extravaſation, and the inſtrument has been applied in a preventative ſenſe merely, the length of the fracture muſt determine the number; one or two only may be made at firſt, and it may be right to wait for farther direction from future circumſtances. The circumſtances which may render a repetition of the operation neceſſary are, acceſſion, or increaſe of fever; large diſcharge of matter, or lodgment of the ſame fluid; inflammatory tenſion of that part of the dura mater which has already been denuded, &c. Directions to be given by a writer can, on this ſubject, be only and truly general; all the reſt muſt be left to the judgment of the ſurgeon, which judgment muſt be formed from the peculiar nature of each individual caſe.

When

* The beſt practitioners have, at times, found themſelves neceſſitated to apply the inſtrument repeatedly in the ſame caſe, in order to remove a conſiderable quantity of bone; and among the writers on this ſubject, are frequent relations of ſuch facts. The practice is undoubtedly juſt and right; but I cannot help thinking, from what I have ſeen of the perforating inſtruments of many of our predeceſſors, that a part of their trouble, and of the fatigue of their patients in ſuch caſes, might have been much leſſened, had the circle of their ſaw been larger. The advantage of a large circle is great; the inconvenience imaginary.

When the operation has not been performed as a preventative, but to give diſcharge to that matter which a ſymptomatic fever indicates to have been formed, the quantity of ſuch fluid, the extent of the receſſion of the dura mater, and the ſtate of that membrane, muſt determine the conduct of the operator. The only chance of relief is, from laying bare a large portion of it, that the diſcharge may be as free, and the confinement as little as poſſible; nothing but this can do good, the ſpace of time in which it may prove beneficial is very ſhort, that once elapſed is abſolutely irrecoverable, and the neceſſary operation for obtaining ſuch end may full as well be totally neglected, as done by halves, or too late.

The extent of the injured and ſeparated dura mater, and conſequently of the vacuity for the formation and lodgment of matter, is a thing of ſo much conſequence, that it is to be wiſhed we were able to diſcover it with more preciſion and clearneſs than we ſeem to be able to do. It is the greateſt circumſtance of hazard to the patient, and of direction to the ſurgeon. It is that which, if undiſcovered or neglected, muſt deſtroy the former, and that, which when diſcoverable, and attended to by the latter, is not only his information, but his vindication.

The concealment of the dura mater within the cranium is one great cauſe of this great obſcurity. This neceſſarily prevents us from knowing the true ſtate of the ſaid membrane, as much and as certainly as it is to be wiſhed we could; but ſtill I cannot help thinking, that there are ſome circumſtances and appearances, as well before perforation as after, which, if carefully and duly attended to, may throw ſome light on this obſcure part of ſurgery. For example, if, upon dividing the ſcalp, the pericranium is found to be altered, and perfectly ſeparated from the ſkull to which it ought naturally to adhere; or if, ſome few days after ſcalping, (as it is called) the edges of ſuch wound

ſpontaneouſly quit their adheſion to the bone all round, to ſome diſtance, and inſtead of being firm, florid, and healthy, become looſe, tawney, and flabby; or if the ſkull, upon being denuded, is plainly of a colour different from that of a healthy ſound bone, with a healthy ſound membrane under it; or if ſuch bone, after having been either accidentally or deſignedly laid bare, undergoes ſuch morbid change of aſpect, and the patient is at the ſame time reſtleſs and feveriſh, with tenſive pain in the head, and irregularly returning fits of heat and chilline ſs; I think, that we may moſt reaſonably preſume, that the dura mater in ſuch patient is inflamed; and that the ſeat of ſuch inflammation is under ſuch bare and altered part of the ſkull.

This preſumption, as I have juſt obſerved, may take place before perforation; but, if added to theſe circumſtances, which appear before the operation, we find upon perforating that the membrane is inflamed, detached, altered from its natural texture and brightneſs, or ſmeared over with matter, the caſe is then clear, as to its nature; and it is as clear, that nothing but the removal of a conſiderable portion of the ſkull can either give room for the inflammatory tenſion of the membrane, or make way for the diſcharge of matter generated on its ſurface, the two circumſtances on which the well-being of the patient depends, the two intentions which muſt be fulfilled, and which nothing but free perforation can enable us to fulfil. Whatever degree of hazard may be ſuppoſed to be incurred, by having expoſed the dura mater to the air, cannot be increaſed by the mere comparative ſize of the opening; and if we may be allowed to expoſe our patients to any riſque at all, it can only be upon a ſuppoſition, that a greater degree of good may be deducible from it.

It ſometimes happens, that one of the bones of the ſkull is cracked, and the dura mater underneath ſuch crack is ſo injured as to become inflamed, and in proceſs of time to ſuppurate; but there being no early

early or immediate ſymptom of ſuch miſchief, and the ſcalp being neither wounded nor bruiſed in ſuch manner or degree as to authoriſe the removal of the ſcalp, the true nature of the caſe is not known, nor the impending miſchief attended to, until the ſymptoms of inflammation begin to appear. In this ſituation, after an uncertain number of days, (ſometimes more, ſometimes leſs) the patient finds himſelf out of order, is reſtleſs, does not get natural or quiet ſleep, is fluſhed and chilly by turns, feels pains of the dull tenſive kind all over his head, but particularly in the part where the blow was inflicted. Soon after he has got into this ſtate, the part ſo pained becomes in ſome degree tumid, the febrile ſymptoms advancing notwithſtanding every internal aſſiſtance. If in theſe circumſtances the tumid part of the ſcalp be divided, and the cranium be found bare, (the pericranium having ſpontaneouſly quitted its adheſion) whether it be broken or not, miſchief is certainly forming * underneath it, and the one remedy is perforation.

It alſo ſometimes happens that a fine capillary fiſſure runs, or is continued, under an undivided part of the ſcalp, from the extremity of a fracture to a diſtance greater or leſs; or, in other words, the fracture in its track, from being open and apparent, becomes capillary, and is either not ſeen or not attended to. If the dura mater, under ſuch fiſſure, does not become inflamed, it may poſſibly never give any trouble; but if it does become inflamed and ſuppurate, the ſcalp covering ſuch fiſſure will, at the end of ſome days, ſwell, and become tender to the touch; the pericranium will, by ſeparating from the bone, form a ſinus along the track of the fiſſure, a diſcharge of gleet

* "Oſſium rima occulta interdum non ante ſeptimum diem, interdum non ante deci-
"mum quartum, interdum ſerius ſe oſtendit, tum caro ab oſſe recedit; tumque os livi-
"dum apparet; dolores item ichorum diffluentium excitantur; atque hæc difficulter re-
"mediis cedunt." HIPPOCRATES.

gleet will be made from it upon preſſure, and the diviſion of it will diſplay the breach in the bone.

Notwithſtanding the fracture from which this fiſſure is continued be large and open, and the trephine may alſo have been more than once uſed to ſuch fracture, yet, when the appearances are ſuch as I have related, if the patient be not entirely free from all general ſymptoms of inflammatory miſchief, it may be depended upon, that the membrane under the fiſſure is diſeaſed, and if a convenient opening be not made upon the part aggrieved, bad conſequences will follow, notwithſtanding all that may have been done to the more viſible and open part of the fracture. A very ſtrong and convincing proof of the nature of a local inflammation of the dura mater, as well as of the moſt proper method of treating ſuch diſorder.

In caſes of great violence offered to the head, whether the ſkull be broken or not, it ſometimes happens, more particularly in young ſubjects, that we find a ſuture conſiderably disjoined; in which circumſtance I do not remember ever to have ſeen one ſingle inſtance of a recovery.*

I cannot take leave of this ſubject without reminding the young practitioner, that although it be impoſſible for any one, in the caſe of highly inflamed or ſuppurating dura mater, to get well without perforation of the ſkull, yet that operation muſt be conſidered only as one abſolutely neceſſary part of the proceſs toward obtaining a cure; and that phlebotomy, gentle evacuations per anum, proper febrifuge remedies, and a ſtrict low diet and regimen, will be full as neceſſary after ſuch operation as before it. The removal of a piece of bone takes off ſome preſſure from the tenſe and inflamed membrane, frees

* "Repentina futurarum disjunctio, ſi cauſam attendas, ſine aliqua cerebri concuſſione eſſe non poteſt: ſi effectum, non ſine violenta craſſæ meningis, illuc magis adhærentis diſtractione, ac annectentium fibrillarum ac vaſculorum laceratione." &c.

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frees it in ſome degree from its confinement, and gives diſcharge to matter and gleet; but it does no more; and every means which can ſerve to appeaſe the febrile heat, to leſſen the velocity of the circulating fluids, to render the ſkin perſpirable, and the patient cool and eaſy, are full as neceſſary after as before ſuch operation.

CASE XVII.

Simple Fracture.

A Principal overſeer of one of the great roads near to this town was thrown down with great violence, while he was giving directions to the labourers. He fell with his forehead againſt a ſharp ſtone, and lay ſenſeleſs for a few minutes, but ſoon recovered himſelf and walked home. The ſtone had made a conſiderable wound, the lips of which were ſo torn and bruiſed, that the ſurgeon who firſt ſaw him cut them away, and by that means detected a fracture, or rather a fiſſure, of about an inch and half or two inches in length, on the upper or middle part of the os frontale. The man had neither ſickneſs, giddineſs, vomiting, fever, nor any other bad ſymptom for ſeveral days; on which account nothing was done to the fracture, which was dreſſed with dry lint only. He was twice let blood, and kept to a low cool regimen. At the end of ſeven days, he found himſelf ſo well, that he was deſirous of going out; but that not being permitted, he ſtayed at home, and took great care of himſelf. On the eleventh day he found himſelf out of order, ſaid that his head ached, that his ſtomach was not right, and ate no dinner. The following night he

got

got but little reſt. On the thirteenth day, having paſſed very unquietly the preceding night, he did not riſe; and when his ſurgeon came to dreſs him, finding him feveriſh, he let him blood, and gave him a lenient cathartic. In the ſpace of two days more all his ſymptoms were exaſperated; his head-ach was great and conſtant, his fever high, he got no ſleep at all, the edges of the wounded ſcalp became foul, looſe, and ſpongy, and his forehead and viſage were attacked with an inflammatory ſwelling of the eryſipelatous kind. On the ſixteenth day he had a ſevere rigor, and was ſomewhat delirious, and his eyes became ſo tumified that he could not open them. In this ſtate I found him. Being informed of what I have here related, and having examined the bare cranium, I could not heſitate to ſay, that I apprehended his complaint proceeded from the formation and confinement of matter within the ſkull; and that the little chance the man had muſt be from immediate perforation in the track of the fiſſure.

The operation was performed, and the dura mater found covered with matter. He was dreſſed lightly, and loſt twelve ounces of blood.

The next day I was informed that he was very rational but his fever unremitting, and that he got no ſleep. On the nineteenth day I ſaw him again, along with the late Mr. Bethune; the diſcharge from within the ſkull was large, and the bare bone and wounded ſcalp looked very ill; all his other ſymptoms much the ſame.

On the twenty-firſt I was ſent for again. He was now delirious in a high degree, paralytic in one arm and leg, and frequently convulſed in the other, the diſcharge was large and remarkably offenſive, his tongue black, the ſkin of his body burning hot and dry, that of his extremities cold and moiſt; and I ſuppoſe I need not tell the reader what happened that night.

CASE

CASE XVIII.

A Young man playing at cudgels in Moorfields received a ſtroke on his forehead; it did not ſeem either to himſelf or the ſpectators to have been a ſevere one, but as it produced blood it was deemed by the laws of the game a broken head, and he was obliged to yield to his antagoniſt.

As it gave him no trouble, he took no notice of it; was for ſeveral nights afterwards engaged in the ſame diverſion, and followed his daily labour. On the ninth day from that on which he received the blow, he thought that his forehead was ſomewhat ſwollen, and felt tender to the touch, on the eleventh it was more tumefied and more painful, and on the twelfth he found himſelf ſo much out of order, that he applied to be received into St. Bartholomew's hoſpital.

An inciſion was made into the tumor; a thin brown ichor was diſcharged, and a bare bone being diſcovered, a circular piece of the ſcalp was removed, which diſcovered a fracture. The trephine was applied twice along the track of the fracture, by which means it was almoſt totally removed. The dura mater was found diſcoloured, and beginning to have matter on its ſurface. The patient was let blood, and ordered to take the ſal abſinth. mixture with a few grains of rhubarb in it every ſix hours. The ſucceeding night was paſſed ill; the patient complained much of pain, and got little or no ſleep. On the fourteenth his fever was high, his ſkin hot, and his pulſe full and hard; fourteen ounces more of blood were taken from one of the jugulars; and as he ſtill continued coſtive, a lenitive purge was given a few hours afterwards. On the ſeventeenth every thing bore a bad aſpect, both

as to his wound and his general ſtate: he got no reſt, his fever was high, and the wound very ill-conditioned. His head was again carefully examined, in order if poſſible to diſcover ſome other injured part. No ſuch injury was found; and it being impoſſible that he ſhould remain in his preſent ſtate, evacuation ſeemed to be his only chance, and therefore fourteen ounces more of blood were drawn from one of the temporal arteries, by which he fainted, and after which he ſeemed to be ſomewhat eaſier.

For three days from this time he ſeemed to be conſiderably better; but on the twenty-firſt he was again in as much pain as ever, and the ſore again begun to put on a bad aſpect.

The benefit which he had once already received from phlebotomy had been manifeſt; and as his pulſe was well able to bear it again, the temporal arteries were again opened, and he was bled till his pulſe failed ſo much and ſo ſuddenly that I was not a little alarmed. By proper care he was brought to himſelf, and I had no other trouble during his cure than what proceeded from his extreme weakneſs, which the bark ſoon removed.

Although this man may very juſtly be ſaid to have been ſaved by the frequent repetition of phlebotomy, yet as matter was beginning to be formed on the ſurface of the dura mater, and as ſuch matter could have no outlet whereby to eſcape, it is very clear, that unleſs the cranium had been perforated he muſt have periſhed.

CASE

CASE XIX.

THE driver of a poſt-chaiſe was thrown from his horſe near to Ware in Hertfordſhire, and ſtruck his head againſt what they call a ſtepping-ſtone in a waſh-way. He was ſtunned by the blow, and carried into a public houſe; but in half an hour's time found himſelf ſo well as to be able to carry the chaiſe to the place he was going to, which was juſt by. The next day, finding himſelf perfectly well, he went to work again, and continued to do ſo for ſix days. On the ſeventh, he found himſelf ſick, vomited twice, and had a kind of fainting fit followed by a great pain in his head, and ſome degree of fever. From the hardſhip and the irregular manner of theſe peoples living, his complaints were ſuppoſed to be owing to cold, and to intemperance, and he was treated accordingly: but on the ninth day, a tumor appearing on that part of his head which had received the blow, a ſurgeon examined it, and upon opening the tumefied part found a fiſſure running diagonally acroſs the whole parietal bone. The next day he was brought to St. Bartholomew's hoſpital. His ſkin was hot, his pulſe hard and quick, and he complained that his head felt as if it was ſqueezed between two trenchers. The whole fiſſure being brought into view, the trephine was applied three times along the track of it; from each perforation, a quantity of matter was diſcharged, and under each the dura mater was much altered. All poſſible care was taken of him, but to no purpoſe: every day produced an exaſperation of his ſymptoms. On the fourteenth he became paralytic on one ſide, and on the ſixteenth ſunk into a ſtate of perfect inſenſibility, and toward evening died. The whole internal ſurface of the left parietal and temporal bones was detached fr om the dura mater, and covered a large quantity of matter.

CASE XX.

A Bricklayer's labourer was knocked down by the fall of a large heavy pantile, which made a large wound in the ſcalp, and broke the ſkull. The fracture began in the left parietal bone, and traverſing the coronal ſuture ran about an inch in the os frontale.

He was ſoon brought to the hoſpital, where the ſcalp was immediately removed, ſo as to make way for the trephine; which inſtrument was applied on each ſide of the ſuture, in ſuch manner as to comprehend the fracture in each application of it.

The dura mater was found to be uninjured; there was neither extravaſation, nor any other mark of miſchief. The patient was freely and repeatedly let blood, kept to a proper regimen, and preſcribed for by the phyſician. In two months he was diſcharged perfectly well, and had not during his cure one ſingle bad ſymptom.

It may very reaſonably be remarked, that this was one of thoſe caſes which would have done well without the operation, which I am much inclined to believe: but does not this caſe, as well as many others of like ſort, prove alſo, that the laying bare the uninjured dura mater is not a matter of ſuch hazard, as ſome have ſuppoſed it to be?

CASE XXI.

A Girl about nine years old fell from the top of a pretty high hay-rick at Iſlington, and pitched with her head on the ground, which was hard and dry. She was carried home bleeding freely from a wound

a wound on one ſide of the upper part of the head, and a ſurgeon in the neighbourhood examining her found that her ſkull was broken; upon which ſhe was brought to the hoſpital. The fracture was detected; it began in one parietal bone, and paſſing the ſuture ended in the other, making a courſe of about three inches in all. It was open, and blood diſcharged through it.

The trephine was applied to it on each bone; the dura mater was not hurt. She had neither ſickneſs, ſtupor, pain, nor fever, and got well without any trouble; not even any exfoliation from the bare cranium.

The ſame remarks as were applicable to the foregoing caſe are, perhaps, equally ſo to this.

CASE XXII.

A Farrier's ſervant received a blow from the foot of a horſe which he was ſhoeing. The blow knocked him down, and bereaved him of ſenſe. He lived near Smithfield, and was brought to the hoſpital ſenſeleſs.

I ſaw him in leſs than half an hour, and found him to all appearance well, his ſenſes perfectly recovered, and no remains of the injury viſible, ſave a ſmall bruiſe on his forehead. A diſcutient cerate was applied to the bruiſe, he was let blood, a purge was ordered for the next day, and he was adviſed to keep very quiet.

On the third day he was perfectly well, had no general complaint, and the bruiſe on his forehead was what is commonly called black and blue.

He

He continued well until the evening of the ſeventh day, in which he complained of being faint, chilly, and uneaſy in his head, particularly his forehead. The following night he was reſtleſs, and in the morning was ſick and giddy, and had no appetite. His pulſe was very little riſen; however twelve ounces of blood were taken from his arm, and he was ordered to take the ſal abſinth. mixture ſextis horis, and keep in bed. The ninth and tenth days were paſſed in much the ſame manner, but on the eleventh his fever roſe high, and the part of his forehead which had received the blow became ſwollen and tender. On the thirteenth the tumified part palpably contained a fluid, and was therefore opened. A fracture of about two inches in length was diſcovered, running from juſt above the frontal ſinus upward. The trephine was applied in the moſt depending part, and matter found between the membrane and bone. The day after this operation, finding his pulſe to be full and hard, I bled him ſo freely that he ſwooned, and was ſome minutes before he recovered. That night he paſſed much eaſier; and although the diſcharge of matter was conſiderable for ſome time, yet, by proper care and due management, both phyſical and chirurgical, he got well.

I will not aſſert it to be a general fact, but as far as my own experience and obſervation go, I think that I have ſeen more patients get well, whoſe injuries have been in or under the frontal bone, than any other bones of the cranium. If this ſhould be found to be generally true, may not the reaſon be worth enquiring into?

CASE

CASE XXIII.

A Lad about ſeventeen, the ſon of a plaſterer, was at work with his father at the manſion-houſe, and fell from a ſcaffold a conſiderable heighth. He lay ſenſeleſs for ſome minutes, but in a little time was ſo much recovered as to walk. On the left ſide of his head was a ſmall bruiſe, which gave him little or no pain. He had no ſymptoms which indicated that he had ſuſtained any miſchief; and after having ſtaid at home a day or two at the perſwaſion of his mother, he returned to his buſineſs. On the ninth day from that of his fall, he was ſeized with a violent ſhooting pain in his head, was ſick, and had a kind of convulſive fit.

As it was not ſuppoſed that his fall had any ſhare in that attack, no notice was taken of it; a few ounces of blood were drawn from his arm, and the apothecary who had the care of him gave him ſome of thoſe medicines that are called nervous.

His head-ach, fever, and watching, continued without remiſſion for ſeveral days, and at the end of three weeks he died, paralytic on one ſide, and convulſed on the other.

A ſmall ſwelling having appeared on his head three or four days before his death, his father deſired me to come and look at it, after that event had happened.

The pericranium was ſeparated from the left parietal bone quite acroſs, by means of a fracture which traverſed the length of the whole bone. A quantity of matter was lodged between the inner ſurface of the ſaid bone and the outer one of the dura mater, and a ſmaller collection of matter was alſo found between that membrane and the pia mater.

CASE

CASE XXIV.

A Young man about twenty-two was brought into St. Bartholomew's hoſpital, conſiderably hurt by a fall from a high ſcaffold.

The radius of his right arm was broken about its middle; the tibia and fibula of his left leg were both broken, and one or two of his ribs.

By proper care, in about five weeks, he was ſo well as to be permitted to get out of bed. The firſt day of his riſing he complained of being ſick and giddy, which was imputed to weakneſs and confinement, and therefore diſregarded. For three or four days after this period he complained of conſtant pain in his head, got no ſleep, and was conſtantly feveriſh. As he had never made any complaint of his head, nor had apparently ſuſtained any injury on that part, Mr. Nourſe (whoſe patient he was) could not ſuſpect any, and therefore contented himſelf with the common antiphlogiſtic regimen. At the end of the ſixth week, he complained that his head was painful to the touch; and the day after he had made this complaint, he had a ſevere rigor, which laſted half an hour. On the twenty-ninth day a ſwelling, palpably containing a fluid, appeared on the ſide of his head. Mr. Nourſe opened it, and found a fracture of the parietal bone three inches long at leaſt, through which matter iſſued freely. The trephine was applied, a large quantity of matter was diſcharged, and the dura mater was found ſloughy; under which ſloughy part was another collection of matter between the membranes, and under this latter abſceſs the brain was conſiderably diſcoloured. He died on the fiftieth day from that of his fall.

CASE

CASE XXV.

A BOY, belonging to a horſe-dealer in Smithfield was thrown from a horſe, with great violence, againſt one of the ſheep-pens. He had a large wound and a fracture, which began about the middle of the frontal bone; and paſſing the coronal ſuture, ended in the right parietal.

A trephine was ſet on the fracture in the frontal bone, and a ſmall quantity of grumous blood diſcharged from between the cranium and dura mater. All that day and night he continued ſenſeleſs; but the next day, by means of a ſecond plentiful bleeding, he recovered his ſenſes. To render every thing (as I hoped) ſecure, a ſmall trephine was applied on the other ſide of the ſuture, which ſeemed to comprehend all the breach made in the parietal bone.

For nine days from this time every thing looked well, and the boy was free from complaint; but on the twelfth from the accident, he complained of being much out of order; and the next day the ſore looked ill, and a thin gleet was diſcharged from the dura mater through the lint, which now ſtuck faſt to it, inſtead of coming off eaſily as uſual, and covered with good matter.

For three days from this time, both the boy and ſore remained in much the ſame ſtate. On the ſeventeenth, in dreſſing him, I obſerved a ſpongy kind of papilla on one part of the ſore, which was very tender to the touch, and from which was diſcharged, upon preſſure, a thin ſanious kind of fluid: by means of a probe paſſed thro' this papilla, I diſcovered a ſinus with bare bone its whole length: the diviſion of this detected a capillary fiſſure, of at leaſt two inches in length. A trephine was ſet on it, and the dura mater was found diſ-

coloured, and with matter on its ſurface. By means of free evacuation at firſt, and as free uſe of the bark afterwards, this patient got well.

CASE XXVI.

TWO female inhabitants of St. Giles's got drunk together, and quarrelled; one of them threw a ſtool at the other, and knocked her down. The edge of the ſtool cut through the ſcalp, and broke the left parietal bone. The fracture ran from the middle of the bone as far as the ſagittal ſuture. The girl was dreſſed that night by ſomebody in her neighbourhood, and was brought the next morning to the hoſpital. As ſhe had no bad ſymptom of any kind, the operation was deferred, and ſhe went on very well for a week; at the end of which time ſhe began to complain in ſuch manner, and her ſore bore ſuch an aſpect, that I thought there muſt be miſchief under the cranium. A trephine was ſet on the fracture; the dura mater was found ſloughy and purulent. She was bled again freely, and took proper medicines. On the fifteenth day ſhe had a ſhivering, and after it a very briſk fever. On the ſeventeenth ſhe was worſe in every reſpect. On the eighteenth a tumor appeared on the other ſide of the head. This was opened, and a fiſſure diſcovered in the right os parietale. A trephine was ſet on this fiſſure, and a diſcharge given to a large quantity of matter. Every thing that could be done for her was done; but on the twenty-third day ſhe died.

The dura mater was ſeparated from both the parietal bones, and matter found in large quantity under each.

It

It was for many years a generally received opinion, that one uſe of the ſutures of the cranium was, to prevent the paſſage of a fracture from one of the bones to another.

This purpoſe they may undoubtedly have often accidentally ſerved; but that they are generally incapable of ſo doing, manifold experience evinces. Fractures are often ſeen to paſs regularly through a ſuture, from one bone to the adjoining, without any diſcontinuation or impediment. This is a fact which ought, by writers and lecturers, to be conſtantly inculcated, as an inattention to it may be of very bad conſequence to individuals: for the practitioner who ſuppoſes that a ſuture will certainly, or not unfrequently, ſet bounds to a fracture, will, when he has traced ſuch kind of breach in one bone as far as the ſuture into which it may happen to run, not think it at all neceſſary to go farther and examine the adjoining bone.

A ſuſpicion of the ſtricter adheſion of the dura mater to the ſkull at the places of theſe ſutures than every where elſe, the ſituation of what are called ſinuſes immediately under the ſutures, and a fear that either high and dangerous inflammation muſt follow the violent detachment of a part of them, or that an unreſtrainable and fatal hæmorrhage muſt enſue from a breach of thoſe veſſels which paſs from the ſinuſes through the ſutures, have deterred moſt of our anceſtors from meddling with them, and induced them to deliver down to us frequent prohibitions againſt the application of perforating inſtruments upon them. Neither of theſe apprehenſions are founded in fact, or in ſtrict truth. The ſeparation of the ſkull from the longitudinal ſinus is not attended neceſſarily with any kind or degree of inflammation peculiar to itſelf, or more than any other part of the dura mater; nor is the laceration, or breach of the communicating veſſels between this ſinus and the ſuture which covers it, neceſſarily followed by any ſuch de-

gree of hæmorrhage as to prove hazardous or alarming; as I have more than once experienced.

A perforating inſtrument moſt certainly ought not wantonly or unneceſſarily to be ſet on this part; and this for a reaſon not drawn from any peculiar hazard attending ſuch operation. The larger ſize, and greater number of veſſels here than in other parts of the bone, will certainly cauſe ſuch a degree of bleeding, or hæmorrhage, as though eaſily reſtrainable when the piece of bone is removed, may yet, in the act of perforation, conſiderably embarraſs and perplex a young operator: it will therefore behove him, in general, to avoid comprehending the ſuture within his ſaw; but ſtill it is right that he ſhould know, that when particular circumſtances render it abſolutely neceſſary, ſuch thing may be done very conſiſtently with his patient's ſafety. Not only a part of the ſagittal ſuture, covering the longitudinal ſinus, may be removed with a trephine, if neceſſary, and no hazard be incurred from the breach of the attaching veſſels; but a wound of the ſinus itſelf is by no means *neceſſarily* attended with an unreſtrainable or fatal hæmorrhage.

The very writers themſelves, who are ſo apprehenſive of a wound of this part, forget the relations they every now and then give us of fragments of broken bone ſafely extracted from it.

A miſtake concerning the nature of the ſinuſes was (I ſuppoſe) the foundation of theſe apprehenſions. The idea which moſt of our anceſtors had of the motion of the dura mater induced them to believe that, as the ſinuſes were compoſed of this membrane, a wound made in them, like a wound in an arterial tube, could hardly reunite. It is now univerſally known, that they are merely venal, and that there is no ſuch impediment to the immediate coaleſcence of a wound in them, when it may happen to be accidentally inflicted.

CASE

CASE XXVII.

A BOY about eight years old, the ſon of a Jew merchant in the city, received a blow on his head with a ſtick from his tutor. The ſtroke made him giddy for a few minutes; but as no blood was ſhed, and the pain ſoon ceaſed, he concealed it till it was diſcovered by his barber that his head was ſwollen in that part. In the middle of the top of his head was a tumor, about the ſize of a common wall-nut: it was indolent, had a dull kind of pulſation, and palpably contained a fluid.

Mr. Serjeant Amyand and Mr. Shipton were joined with me. In their preſence I divided the tumor with a knife, and let out a quantity of fluid venal blood. When as much had been diſcharged as the tumor might be ſuppoſed to have contained, we were ſurprized to find the blood ſtill continue to flow, plainly not from the wounded ſcalp but from the bottom of the cavity.

Upon examination, it was found that the ſagittal ſuture was broken, that a portion of the fracture was forced into the ſinus, and that the blood iſſued by the ſides of this fragment.

Extraction of this fragment was attempted, but to no purpoſe. By the direction of the conſultants, I made a ſmall perforation on one ſide of the ſuture; but when that was done, the point of the elevator could not be ſo introduced as to get the broken piece out. The trephine was then applied on the other ſide of the ſuture, and to the ſame effect, or rather no effect. The fragment was only capable of being extracted as it had gone in. At laſt, after much deliberation and converſation about the hazard of wounding a ſinus, (which was indeed already wounded by the broken bone) it was agreed to ſet a trephine on the ſuture, in ſuch manner that the whole ſurface ſhould be comprehended

prehended within its circle. This was done; but when the elevator was applied, the piece ſawed came out in fragments, and left the one portion which had pierced the ſinus ſtill ſticking in it. We were then neceſſitated to lay hold of it and extract it with a pair of forceps. A flux of blood followed, but by the application of a ſmall doſſil of dry lint, held on for a few minutes, it ceaſed, and never recurred. The patient is alive at the time of my writing this.

CASE XXVIII.

A Girl about ſixteen was knocked down by her mother with an iron poker of conſiderable weight; the latter immediately ran away and the former was brought ſenſeleſs to the hoſpital. She had a large wound on the top of her head, with a conſiderable fracture of the ſagittal ſuture. The broken pieces were ſo large, and ſo looſe, as to be eaſily removable without any perforation. When they were taken away, the longitudinal ſinus was left bare, at leaſt two inches in length; but no hæmorrhage followed the removal of the fragments.

For three days ſhe was bled twice a day, from one part or other of her, and ſtools were procured in ſuch manner as was poſſible, but to no purpoſe; ſhe ſtill remained perfectly and abſolutely ſenſeleſs. On the fifth day, finding her ſtill in the ſame ſtate, and verily believing that nothing in art could at all ſerve her, I made an opening with a lancet into the longitudinal ſinus, and ſuffered the blood to run off, until her countenance, which was much fluſhed, became pale, and her pulſe, which till now had been full and ſtrong, though labouring, faultered conſiderably; in ſhort, till ſhe ſhewed as much as a ſenſeleſs perſon could the marks of a deliquium from inanition. I then put a bit of lint on the orifice, and ordered the nurſe to keep her finger lightly on it until I had viſited the reſt of the houſe. When I returned, the part

ſhewed

ſhewed no diſpoſition to bleed again, nor did it ever after. That afternoon ſhe opened her eyes and moved her arms, and the next morning was ſenſible enough to aſk for drink. She retained her ſenſes for ſeveral days, but a fever coming on ſhe became delirious and convulſed, and died ſo on the ſeventeenth day from that of her admiſſion into the hoſpital.

Upon examination, after death, a conſiderable abſceſs was found on the ſurface of the brain, on one ſide of the falciform proceſs of the dura mater.

I ſhould be very ſorry to be ſo miſunderſtood, as to have it conceived that I have related theſe caſes with a view to encourage the opening of a longitudinal ſinus; that is far from my intention; I only mean, by adducing theſe inſtances, to prove that our fears of irremediable miſchief from ſuch wounds, whether accidentally or artificially inflicted, are not well grounded; and that we may, in ſome deſperate caſes, have recourſe to ſuch means as have been ſuppoſed to be either impracticable or unwarrantable. A ſurgeon ſhould ever be cautious; but ill-grounded apprehenſions will neceſſarily prevent improvements, and hinder us in ſome caſes from attempting what may prove beneficial to mankind. Had every ſucceſſor to Hippocrates been of his opinion, the operation of lithotomy had never arrived at its preſent ſtate of perfection, and mankind had been ſuffered to languiſh under, and be deſtroyed by, a moſt tedious as well as excruciating malady.

SECT.

SECT. V.

Fractures of the Cranium with Depreſſion.

SIMPLE fractures of the ſkull, or thoſe in which the parts of the broken bone are not depreſſed from their ſituation, differ from what are called fiſſures, only in the diſtance of the edges of the breach from each other. When the ſeparation is conſiderable it is called a fracture, when it is very fine and ſmall it is called a fiſſure. The chirurgical intention and requiſite treatment is the ſame in each, viz. to procure a diſcharge for any fluid which may be extravaſated in preſent, and to guard againſt the formation or confinement of matter in future. But in fractures attended with depreſſion the intentions are more. In theſe the depreſſed parts to be elevated, and ſuch as are ſo ſeparated as to be incapable of re-union, or of being brought to lie properly and without preſſing on the brain, are to be totally removed.

Theſe circumſtances are peculiar to a depreſſed fracture; but although they are peculiar, they muſt not be conſidered as ſole, but as additional to all thoſe which have been mentioned at large under the head of ſimple fracture: commotion, extravaſation, inflammation, ſuppuration, and every ill which can attend on or be found in the latter, are to be met with in the former, and will require the ſame method of treatment.

To free the brain from preſſure, and to provide a free diſcharge for blood or lymph at preſent, or for matter in future, by elevating the depreſſed pieces, and by removing ſuch as were looſe, was as well known to the antients to be the proper curative intentions, as they can be to us; but the means which they made uſe of in order to accompliſh

G.R III.

1. Elevatorium simplex. 2. Trochlea bipas. 3. Trochlea tripas, of the Antients.

compliſh theſe ends were ſomewhat different to what are now uſed, and laboured under ſome inconveniences which later practitioners have corrected. This difference it may be worth while to enquire into.

Moſt of the attempts made by our anceſtors, for the elevation of depreſſed parts of the cranium, were made by the application of inſtruments to the parts ſo depreſſed. This was a palpable imperfection, to ſay no more of it; but this was not all; for the inſtruments which they made uſe of on theſe occaſions were not only to be faſtened to the depreſſed part of the bone, but required alſo ſome degree of force to be uſed in faſtening them to ſuch part. The troclea tripes, the troclea bipes, and all the pieces of machinery deſigned by Albucaſis, Guido, Andreas a Cruce, Fabritius ab Aquapendente, Paré, and Scultetus, as well as thoſe delineated by Hildanus, and Peter Paaw, are proofs of this: they all require a perforation to be made in the depreſſed piece, either by or for the ſcrew with which it is to be elevated. Now, not to mention that moſt of theſe inſtruments were ſo complex as to render them extremely aukward and unmanageable, it is obvious, that by the application of any of them to the depreſſed pieces, (eſpecially if they were looſe) all the ills ariſing from preſſure made on the parts underneath muſt be increaſed; and that in many caſes they could not be uſed at all. Celſus has indeed directed the meningophylax to be uſed as an elevator; which inſtrument differs but little from the elevator uſed at preſent, either in form or manner of application; but then the opening through which it is to be introduced, is to be made either with the terebra or the cyliſcos, the inconveniences of which have already been remarked. In ſhort, all the objections which the old perforating inſtruments were liable to in ſimple undepreſſed fractures being of ſtill greater force in fractures with depreſſion, and the application of any kind of inſtrument whatever to the outer ſurface of a depreſſed or looſe piece of ſkull being palpably wrong, and liable to hazard, the preſent practitioners are certainly vindicable in having laid

them all aſide, and in having endeavoured to accompliſh the ſame end by means which are leſs hazardous and leſs operoſe. The trephine is (as I have before obſerved) the only perforating inſtrument uſed by the beſt of the preſent practitioners in England: with this, an opening is made in the ſound undepreſſed part of the cranium, and thro' ſuch opening an inſtrument called from its uſe an elevator is introduced. This perforation ſhould either comprehend the border of the fracture, where that is poſſible, or if that cannot conveniently be done, ſhould be made as near to it as poſſible, for reaſons too obvious to need recital. What number of perforations may be neceſſary can only be determined by the particular circumſtances of each individual caſe; all the intentions which may ariſe from extravaſation of fluid, or probability of ſuppuration, as well as thoſe from the depreſſion of bone, muſt be fulfilled, or the work will be left imperfect, and little chance of good will attend it.

When the whole diſeaſe ſeems to conſiſt in the mere depreſſion of the bone, and what ſymptoms attend ſeem to proceed from that alone, the elevation of ſuch portion may procure immediate remiſſion of ſuch ſymptoms, and afford a reaſonable proſpect of ſucceſs. But as the injury is not always of ſo ſimple a nature, as other parts are ſo frequently hurt and other miſchief done by ſuch great violence, the remiſſion, or diſappearance of ſuch ſymptoms as ariſe merely from ſuch preſſure, cannot be a ſufficient warrant, either for promiſing or for expecting ſucceſs. The dura mater under the depreſſed piece, or even in another part of the head, may have been ſo hurt as to become inflamed, and to ſuppurate, the ſymptoms of which will not appear immediately, nor in general until ſome time is paſt; but however late they may come on, they will not therefore be the leſs certain or the leſs hazardous. The early attack of thoſe which are cauſed by extravaſated fluid, or depreſſed bone, do by no means preclude the later acceſſion

ceſſion of ſuch as ariſe from inflammation and putrefaction. The depreſſed piece of bone does moſt certainly require our immediate help, but the aſſiſtance lent to that, however proper and effectual, does not render it at all leſs neceſſary to guard againſt ſuch ill as may moſt reaſonably be expected to proceed from violence ſuſtained by the parts underneath. A blow, which has been ſufficient to break and depreſs a portion of the ſkull, very frequently does ſuch damage to the tender veſſels which communicate between that bone and the meninges, as to be the cauſe of much more, as well as greater ill, than what is deducible from the mere fracture; and, conſequently, although the elevation of the bone is *one* very neceſſary part of the ſurgeon's buſineſs in theſe caſes, yet it is very far from being *all* that he has to do. All the ills which may be apprehended, from every other poſſible effect of ſuch violences, are to be feared and guarded againſt, and that full as much in the fracture with depreſſion, as in that without.

This is a part of practice which ought to be very carefully attended to. The generality of writers have contented themſelves with directing us to raiſe up the depreſſed parts, and thereby to endeavour to remove ſuch ſymptoms as are cauſed by the mere preſſure which the bone makes on the brain; but have either totally neglected, or very ſlightly paſſed over, what is of full as much conſequence to the patient; I mean the injury which is moſt frequently done to the membranes of the brain, and which, if neglected, will certainly produce that fever, and thoſe ſymptoms, which ſo often baffle the whole power of medicine.

The combination of different ill effects, proceeding from the ſame primary violence, and concurring in the ſame ſubject, together with the great difficulty of diſtinguiſhing them from each other, is one of the principal cauſes of that perplexing uncertainty attending wounds of the head. When one cauſe of bad ſymptoms has been removed, an-

other, or even ſeveral others, may ſtill remain, each of which ſingly may be ſufficient to deſtroy the patient; and therefore although the means firſt made uſe of may have been ſuch as have been pointed out by the earlieſt and moſt alarming ſymptoms, and extremely proper for the relief of ſuch complaint, had it been the only one the patient laboured under, yet in the caſe of a complication, by not being ſufficient to anſwer every requiſite intention, they very often anſwer none; at leaſt not effectually; and producing only a temporary and partial relief, prove a greater aggravation of our diſappointment.

This every practitioner ſhould know, and this the friends of every patient ſhould be made acquainted with, leſt the former, being deceived by an appearance of amendment, be induced to promiſe what it will not be in his power to perform, and the latter, having had their hopes exalted, ſhould be the more ſeverely hurt by their diſappointment.

If the fracture be but ſmall, the depreſſion little, and the force with which it was produced not great, the elevator introduced through the perforation may be ſufficient to ſet it to rights, and, if there be no urgent ſymptoms nor any miſchief done to the internal parts, may be ſufficient for all purpoſes. But if the force was great, if the ſymptoms are immediate and preſſing, if the fracture runs in a form inclined to a circular one, or if the depreſſed piece be cracked all round, the beſt and ſafeſt way is to remove the whole or greater part of the portion ſo depreſſed and circumſcribed.

To thoſe who are unuſed to things of this ſort, ſo large an opening as ſuch method of acting muſt make will have a very tremendous appearance; and they may be inclined to ſuſpect much hazard and inconvenience from laying bare ſo large a portion of the dura mater; but let all ſuch remember, that however large the quantity of membrane may be which ſhall be thus denuded by the operation, yet the ſame

quantity

quantity at leaſt, moſt probably a much larger, would, in all likelihood, become inflamed, and generate matter on its ſurface; which matter, for want of a timely, ready, and ſufficient outlet, would do conſiderably more miſchief, than the mere detection of the ſaid membrane can do.

In caſes where the broken pieces of a depreſſed fracture are widely ſeparated from each other, and ſome of them a good deal looſened, the expediency and the propriety of removing ſuch pieces is acknowledged by every body; but few people attend to the reaſon, or inquire why ſuch practice is juſt and proper; if they did, they would alſo ſee that the free removal of bone was equally proper in the caſe of great violence, as in that of looſened or widely ſeparated pieces. In the latter, the broken parts are removed, becauſe their re-union with the reſt of the cranium, and the preſervation of the attachment of the dura mater to the inner ſurface of them, is thought impoſſible, or at leaſt highly improbable; and that therefore they muſt be in the way, and hinder the free diſcharge of matter from the ſuppurating membrane. And is not the ſame inconvenience full as likely to attend the former? Is it the violence done to the bone, and through it to the membrane, which cauſes the inflammation and ſuppuration? or is it the looſened or ſeparated ſtate of the broken part? If it be the former, (as it moſt undoubtedly muſt be) the ſame precautions, the ſame method of treatment muſt be equally neceſſary in the one as in the other; the reaſons, the intentions are the ſame in each, and if the conduct be not the ſame the patient will ſuffer.

The peculiar circumſtances of each individual caſe muſt furniſh direction to the practitioner for his particular conduct. Rules to be laid down by a writer on ſuch ſubject can be only general. The parts which are depreſſed muſt be elevated, ſuch as are looſe and cannot be brought to lie even, ſuch as cannot be prevented from preſſing on the membrane,,

membrane, or ſuch as wound or irritate it, muſt at all events be taken away; the free diſcharge of blood or lymph, in preſent, and of matter in future, muſt be provided for, and therefore every ſymptom and appearance muſt carefully and early be attended to, leſt the moſt proper opportunity of giving aſſiſtance be not embraced.

The circumſtances juſt mentioned are ſuch as cannot be neglected but at the riſque of the patient, and therefore the prohibitions which our forefathers have delivered down to us, with regard to the parts of the ſkull on which they ſay we ought not at any rate to apply our perforating inſtruments, muſt be received with ſome limitation.

The places forbidden as improper are, the futures, the lower part of the os occipitale, the oſſa temporum, and that part of the os frontale where the ſinuſes are ſituated.

That a trephine may without hazard be applied on a ſuture, I have already ſaid. When it may with equal utility be ſet on any other part, the futures ſhould undoubtedly be avoided, and that for a good reaſon, excluſive of any peculiar hazard: but that part of a ſuture may (the caſe requiring it) be ſafely removed, is true beyond all doubt. That many of the old practitioners were very apprehenſive of miſchief from hence, is not to be wondered at by any body who conſiders their idea of the nature of the ſubjacent ſinuſes, and the ſtrange unmanageable inſtruments with which they operated. Not that there are wanting old writers who have held the doctrine of operating on a ſuture, when neceſſary, very defenſible, among whom is J. Baptiſt. Corteſius.

Perforation of the temporal bones has been forbid, both on account of the artery and the muſcle which are on its ſurface; unreſtrainable hæmorrhage having been dreaded from the one, and fatal convulſion from the other; but experience may convince us, that neither of theſe apprehenſions are ſtrictly juſt. The temporal artery, when divided, is often capable of being reſtrained by compreſſion, and always by ligature;

gature; and that fatal convulſion, which is vulgarly called the locked jaw, though it produces one of its moſt ſtriking and moſt viſible effects on theſe muſcles, is not neceſſarily produced by a wound of either of them, more than by a wound of any other. In ſhort, the upper part of the temporal bones may be laid bare, if neceſſary, by an inciſion made through the muſcles covering them; and may alſo be perforated. Such operation does not indeed often prove ſucceſsful; but the failure of ſucceſs does not proceed from the nature of the parts operated upon, but from a circumſtance of much more conſequence, and generally without remedy; which is, that in theſe fractures the breach is moſt commonly continued on to the baſis of the ſkull, and is alſo moſt frequently attended by a large extravaſation within or under the brain and cerebellum.*

When the depreſſed parts have been raiſed up, the looſe ones removed, extravaſated fluid diſcharged, the brain freed from preſſure, and way made for the free exit of whatever may be formed or collected, the bare dura mater ſhould be dreſſed as eaſily and lightly as poſſible. Our anceſtors had a multiplicity of medicaments, which they uſed upon theſe occaſions, and were very preciſe in ſuiting them to the different ſtates (as they called them) of the ſore and membrane. They were alſo very exact in making and applying thoſe pieces of linen or of ſilk, called ſindons, which they uſed to imbue with the ſaid remedies, and dreſs the bare dura mater with. I have taken no notice of either, becauſe I verily believe that the majority of the former were abſolutely uſeleſs, and that the very exact application of the latter was prejudicial, by

* Whoever will examine the diſpoſition of the temporal muſcle will ſee, that its aponeuroſis covers a very conſiderable part of the inferior border of the os parietale; and conſequently, that ſuch part of the bone can never be laid bare without a diviſion or removal of a part of the ſaid aponeurotic expanſion.

by confining, in ſome degree, what ought to be diſcharged with the utmoſt freedom.

Wounds of the brain, among writers on this ſubject, have alſo generally made a diſtinct chapter; but the treatment of them is ſo very little different from thoſe which have been already related, that they may fairly be comprehended under the ſame article.

The brain is wounded either by the inſtrument or body whereby the ſkull is broken, or by broken parts of the cranium; foreign bodies alſo, ſuch as bullets, ſplinters, parts of weapons, wadding of fire-arms, &c. are ſometimes lodged in it; but let the wound or fracture be what it may; or whatever other circumſtances may happen to attend, the chirurgic treatment is ſhort and plain, viz. to remove all ſuch parts of the broken ſkull, as may preſs, wound, or irritate the brain, or its membranes; to take away all ſuch extraneous bodies, as can eaſily, and without violence be got at and extracted; and to make ſuch an opening, as may moſt conveniently ſerve the purpoſe of diſcharging blood, ſerum or matter, either in preſent or in future. When all theſe things have been done, and the patient has been put under a proper regimen, both of diet and medicine, the ſurgeon has done his duty, and may ſay with Mr. Pope,

"Thus far was right; the reſt we leave to heaven."

For with regard to the dreſſings proper in theſe caſes, they are not at all different from thoſe which ought to be uſed, where neither the brain nor its meninges are hurt. They ſhould be ſoft, light, and not conſiſt of any thing greaſy, or which can poſſibly irritate or inflame; nor ſhould they be applied in ſuch manner or quantity as to preſs or obſtruct the free diſcharge of fluids of any kind. Soft dry lint is perhaps equal to any or all others. In the chirurgical writers are to be found a great many formulæ, but whoever places confidence in them,

for

for any ſuppoſed merit of their own, will find himſelf much diſappointed.

I cannot quit this ſubject, without making, a ſhort remark on the bandages moſt frequently adviſed, and uſed in wounds of the head.

In all the writers on the ſubject of faſciæ, are to be found deſcriptions and delineations of thoſe which are ſaid to be moſt proper for the head. On paper they are neat and elegant, in the application they require a ſmall degree of practice and dexterity, and when applied nicely may impoſe on the ignorant, and on thoſe who have not ſeen much of, or reflected much on their inconvenience. They preſs, heat, and painfully confine the head, even when applied in the beſt and moſt ingenious manner; and when put on aukwardly or negligently are ſtill more troubleſome, and leſs ſerviceable. All that can ever poſſibly be wanted in theſe caſes from bandage muſt be, merely to keep the dreſſings in their place without any degree of confinement or preſſure; and this purpoſe will always be better accompliſhed by a looſe cotton or yarn night-cap, than by the niceſt and moſt elaborate bandage that ever was invented.*

CASE

* On this ſubject I was very glad to find ſo very good a judge as Oribaſius of the ſame opinion.

" Hæc autem omnia non faſciis continentur, propter pondus, ſed velamento, ut cohibe-
" antur, neque cerebri membrana gravatur; ac velamenti media pars, quæ terebrato re-
" ſpondet, forfice exciditur, ut apertum fiat, atque in illud ſpatium lana mollis, in extre-
" mis conſtricta, duplex inditur, &c.

" Plerique omnes non alia vinctura terebratos deligant, ſed ſola redimiculi circum-
" ductione contenti ſint. Quinetiam ipſa quoque ulcera extra terebrationem, quoad

" fieri

CASE XXIX.

A Girl about fifteen years old, croſſing Smithfield on a market-day, was toſſed by an ox, and fell with her head on the flat ſtones within the poſts. As her dreſs was mean, and nobody knew any thing of her, ſhe was brought ſenſeleſs into the hoſpital. She had a large bruiſe on the right ſide of her head, through which I plainly felt a fracture with depreſſion. The ſcalp being removed from that part, the fracture was found to be large, and the depreſſion conſiderable; it traverſed the os parietale from before backward, in its middle part between the ſagittal and temporal ſutures, and the depreſſion was of the upper part of the bone. I applied a trephine on the inferior and undepreſſed part, and by means of an elevator raiſed the whole to a perfect equality. Her head was dreſſed lightly, and ſixteen ounces of blood were taken from her. She paſſed the following night very unquietly, and the next morning was ſtill ſenſeleſs. She was again freely bled, and a purge was given, which ſoon operated. On the third day her pulſe admitting, and her circumſtances requiring it, ſhe was bled again. On the fourth day ſhe became ſenſible, and on the fifth was ſurprizingly well. She remained ſo until the ninth, on the evening of which ſhe complained of head-ach, ſickneſs and giddineſs. She was again let blood, and put under the direction of the phyſician, who ordered ſome

"fieri poteſt, conari debemus ſine faſciis curare; non modo quia gravantur compreſſis "iis quæ ſub vinculis impoſita ipſis fuerant, verum etiam quia plus quam par eſt "calefaciunt. Etenim quod in aliis partibus vinctura, id in capite poſitio præſtabit, ideo "deligare ſupervacaneum erit." ORIBASIUS de fract. ex Heliodoro.

ſome medicines for her. From the ninth to the thirteenth day ſhe remained much the ſame, that is to ſay, feveriſh, and complaining of heat, thirſt, head-ach, and watching. On the fourteenth ſhe had a ſevere rigor, and the ſore on the ſcalp as well as the denuded dura mater wore a very bad aſpect. From this time ſhe became daily worſe and worſe, in every reſpect; and on the twentieth day from that of the accident ſhe died, having been terribly ſhaken by ſpaſms for ſeveral hours.

All the internal ſurface of the os parietale above the fracture was detached from the dura mater, and covered with matter, which could not obtain free diſcharge at the perforation, the membrane being inflamed and thruſt up tight againſt it.

I will not pretend to aſſert, that repeated perforation of the upper part of tbe bone would have preſerved her; but I muſt ſay, as the caſe turned out, it would have been her beſt, if not her only chance; and that, if I had known at that time as much of theſe caſes as I think I have ſince learned, I ſhould certainly have taken away the greateſt part, if not the whole of what had been depreſſed.

CASE XXX.

A Gentleman's ſervant riding careleſly and haſtily thro' London, was thrown from his horſe, and ſtruck his forehead againſt a ſharp ſtone. There was a conſiderable wound on the ſcalp, and a fracture, with depreſſion of the os frontale. The man was perfectly deprived of ſenſe, the bone was conſiderably depreſſed, and a large quantity of blood iſſued from underneath the depreſſed part. A trephine was applied on the undepreſſed part, and the elevation accompliſhed; he was let blood freely, and dreſſed lightly. On the ſecond

and third days he was let blood again. On the fourth he recovered his ſenſes, and from that day to the ninth ſeemed to go on well. On the ninth in the evening he complained of pain and laſſitude, and was ill that night and all the next day. On the eleventh he was worſe, and (to uſe his own words) ſaid, his brains were bound round with a fillet like a collar of brawn. His pulſe was hard, frequent, and jarring, his ſkin hot, and he got no ſleep at all. As the man was evidently and haſtily getting into a hazardous ſtate, I was determined to try what a free removal of bone would do; and with a large trephine took away almoſt the whole of what had been depreſſed. The dura mater was not purulent, but dull in colour, and ſmeared over with what Morgagni ſays, is gelatinis inſtar.

He was again and again let blood, as his pulſe would bear, and the phyſician ordered proper medicines for him. For four days from this time he continued much the ſame, but after that every thing changed for the better; he took the cortex freely, and in about three months was diſcharged well.

As I would not pretend to aſſert, that removal of more bone would have proved ſucceſsful in the preceding caſe, ſo neither will I ſay that the recovery of this man was owing to it. I can only ſay, I verily believe both, and that I am ſorry I did not make the ſame experiment in both. The caſes were materially ſimilar; and the analogical is the only method we have of reaſoning on ſubjects like this, wherein we cannot have demonſtration.

CASE

CASE XXXI.

A BOY about fourteen years old, following a led horſe, was deſired by the ſervant, in whoſe hand the horſe was, to ſtrike him; the boy did ſo, and received a blow from one of the horſe's heels, which brought him to the ground ſenſeleſs. He had on the upper and middle part of his forehead a large wound, which diſcloſed a conſiderable fracture, with depreſſion.

The fracture ran nearly in a tranſverſe direction acroſs the bone, and the depreſſion was of the upper part. A trephine was applied, an elevator introduced, and the depreſſed part of the bone with ſome difficulty made to lie even. The head was dreſſed lightly, and the boy was let blood largely. He continued ſenſeleſs all that night, was let blood twice the next day, and had a purge, and a glyſter. On the fourth day he ſhewed ſome ſigns of ſenſe, and in two more, being again let blood and kept very low, was quite ſenſible. From this day until the fourteenth, every circumſtance was promiſing, but on that day he again became ill; his pulſe from this time was hard and quick, and, in ſhort, he had for three or four days all the ſymptoms of miſchief under the cranium. On the nineteenth I made a large perforation in that part of the bone which had been depreſſed and elevated, and gave diſcharge to a very large quantity of offenſive matter. On the twenty-ſecond he became delirious and convulſed, and on the twenty-third died.

I removed all the upper part of the cranium, and found the dura mater altered in colour, and ſeparated from the whole frontal bone, from the fracture quite up to the ſagittal ſuture; and under the ſaid membrane, matter to the quantity of about half an ounce.

CASE

CASE XXXII.

THE following caſe was ſent to me by a very ingenious practitioner at ſome diſtance from London, and may, among others of like ſort, ſerve to prove, that it is not merely the formation of matter between the ſkull and dura mater, but alſo the confinement of it there, which are the joint cauſes of the bad ſymptoms, and of the hazard.

A boy fell from a cart loaded high with hay, and pitched perpendicularly on his head. The blow ſtunned him for a few minutes, but he ſoon got up again, ſaid he was not hurt, and walked home with the cart.

As he made no complaint at home, his maſter took no farther notice of his fall, and the boy followed his daily labour in the farm-yard.

At the end of a fortnight he came to my friend, and deſired him to look at the ſwelling on the upper part of the right ſide of his head. The tumor appeared to be full of matter, and the ſurgeon divided the ſcalp, and let out a conſiderable quantity. He paſſed his finger in, in order to examine whether the cranium was bare or not, and was not a little aſtoniſhed to find it not only bare but conſiderably broken. He removed the tumid portion of the ſcalp; and having ſo done, found the diſtinct pieces of bone ſo looſe as to be taken away without any reſiſtance, and ſo large as together to make nearly a third part of the parietal bone. The dura mater under them was clean, and well incarned.

The boy had no one bad ſymptom from firſt to laſt, came to the ſurgeon's houſe every day to be dreſſed, and was alſo in the farm-yard daily.

SECT.

SECT. VI.

Extravaſation and Commotion.

GREAT and hazardous as the evils are which proceed from fractures of the ſkull, they do not exceed thoſe which are cauſed either by the extravaſation of fluids within its cavity, or by the concuſſion or derangement of the ſubſtance of the brain; whether we regard the difficulty under which a practitioner labours in forming a judgment of the true nature of the caſe, or the uncertainty, or the frequent fatality of the event.

The ſhock which the head ſometimes receives by falls from on high, or by ſtrokes from ponderous bodies, does not infrequently cauſe a breach in ſome of the veſſels, either of the brain or its meninges; and thereby occaſions extravaſation of the fluid, which ſhould circulate through them. This extravaſation may be the only complaint produced by the accident; or it may be joined with, or added to, a fracture of the ſkull. But this is not all, for it may be produced not only when the cranium is unhurt by the blow, but even when no violence of any kind has been offered to or received by the head.

Vertigo, vomiting, ſtupidity, hæmorrhage, loſs of ſenſe and motion, either partial or total, are the ſymptoms of this kind of miſchief; ſometimes one, or more, ſometimes all, in the ſame ſubject. Theſe ſymptoms, which are all eaſily accountable for from extravaſation of fluid, and unnatural preſſure made on the brain and nerves, are as I have already at large remarked, frequently miſtaken as indications of a diſeaſe which, conſidered abſtractedly, can never cauſe them; I mean a ſimple undepreſſed fracture of the cranium: it may be accompained by them, but cannot cauſe them.

When

When a fluid is extravaſated in any conſiderable quantity within the cavity of the cranium, if any bad ſymptoms are produced by it at all, they are, and muſt be, ſuch as indicate preſſure made on the brain and origin of the nerves; occaſioning thereby either diſturbance or abolition of the offices of ſenſe and motion; and this in different degree, according to the quantity, kind, and ſituation of the preſſing fluid; and to theſe are ſometimes added hæmorrhage from the noſe or ears. Thus far, I think, we may pronounce poſitively; but to our very frequent mortification we find, theſe are the only circumſtances which in ſuch caſe, we can depend upon, every thing elſe which relates or belongs to them, being involved in a moſt perplexing obſcurity. We not only have no certain infallible rule whereby to diſtinguiſh what the preſſing fluid is or where it is ſituated, but we are in many inſtances abſolutely incapable of knowing whether the ſymptoms be occaſioned by any fluid at all; for a fragment of bone, broken off from the internal table of the cranium, and making an equal degree of preſſure, will produce exactly the ſame complaints.

Sometimes indeed the caſe is otherwiſe; and, from concomitant appearances, the true nature of the diſeaſe may with ſome degree of certainty be known; but this does not happen very often.

Many of our anceſtors, when no fracture was diſcoverable in the cranium of a perſon labouring under ſuch ſymptoms as have been mentioned, in conſequence of violence offered to the head, contented themſelves with calling the caſe a concuſſion; and although they had no very preciſe idea annexed to the term, yet they ſeldom went farther for a ſolution: like teeth and worms in infants, or like nerves in women, it ſatisfied ignorant inquirers. The cranium was not broken, the miſchief was out of ſight, moſt probably out of reach, and they had not often the curioſity or the anatomical judmgent to examine after death into the real ſtate of the caſe.

That

That a concuſſion or commotion of the ſubſtance of the brain is a circumſtance which frequently happens, is a truth beyond all doubt; and that it is often the cauſe of death, is as true; but that many of the caſes which, the ſkull been found not broken, have paſſed for concuſſions, have been really produced by very different cauſes, has often been inconteſtably proved by the examination of ſuch perſons heads after death; where ſuch extravaſations of blood or lymph or both have been found, as would fairly and rationally account, both for the ſymptoms, and for the event.

A concuſſion and an extravaſation are very diſtinct cauſes of miſchief, though not always very diſtinguiſhable.

M. Le Dran, and others of the modern French writers, have made a very ſenſible and juſt diſtinction between that kind and degree of loſs of ſenſe which ariſes from a mere commotion of the brain, and that which is cauſed by a mere extravaſation, in thoſe inſtances in which the time of the attack or appearance of ſuch ſymptoms are different or diſtinct. The loſs of ſenſe, which immediatly follows the violence, ſay they, is moſt probably owing to a commotion; but that which comes on after an interval of time has paſt, is moſt probably cauſed by extravaſation.

This diſtinction is certainly juſt and good, as far as it will go. That degree of abolition or diminution of ſenſe, which immediately attends or follows the blow or fall, and goes off again without the aſſiſtance, of art, is in all probability occaſioned by the ſudden ſhake or temporary derangement of the contents of the head; and the ſame kind of ſymptoms recurring again ſome time after they had ceaſed, or not coming on until ſome time has paſſed from the receipt of the violence, do moſt probably proceed from the breach of a veſſel within or upon the brain. But unluckily we have it not very often in our power to make this exact diſtinction. An extravaſation is often made ſo imme-

diately, and ſo largely, at the inſtant of the accident, that all ſenſe and motion are inſtantaneouſly loſt, and never again return. And it alſo ſometimes happens, that although an extravaſation may poſſibly not have been made at the moment of the accident, and the firſt complaints may have been owing to commotion merely, yet a quantity of fluid having been ſhed from its proper veſſels very ſoon after the accident, and producing its proper ſymptoms, before thoſe cauſed by the commotion have had time to go off, the ſimilarity of the effects of each of theſe different cauſes is ſuch, as to deprive us of all power of diſtinguiſhing between the one and the other, or of determining with any tolerable preciſion to which of them ſuch ſymptoms as remain are really owing.

When an extravaſation of any kind is made, either upon or within the brain, if it be in ſuch quantity, or ſo ſituated as to diſorder the economy of the animal, it always produces ſuch diſorder, by making an unnatural preſſure on the parts where it lies. The nature and degree of the ſymptoms hereby produced are various and different in different perſons, according to the kind, quantity, and ſituation of the preſſing fluid. The ſymptoms hereby produced are various and different in different perſons, and under different circumſtances, according to the kind, quantity, and ſituation of the preſſing fluid. Sometimes it is mere fluid blood, ſometimes blood in a ſtate of coagulation, ſometimes it is a clear lymph, and at others blood and water are found mixed together; each of theſe is found either ſimple or mixed in different ſituations, that is, between the ſkull and dura mater, between the dura and pia mater, or in the natural cavities of the brain called its ventricles, and ſometimes, in caſes of great violence, they are found at the ſame time in all theſe different parts. Sometimes a conſiderable quantity is ſhed inſtantly, at the time of the accident; and ſometimes the breach by which the effuſion is made is ſo circumſtanced, both as to nature and ſituation,

that

that it is at firſt very ſmall, and increaſes by faſter or ſlower degrees. In the former, the ſymptoms are generally immediate and urgent, and the extravaſation is of the bloody kind; in the latter, they are frequently ſlight at firſt, appear after ſome little interval of time, increaſe gradually till they become urgent or fatal, and are in ſuch caſe generally occaſioned by extravaſated lymph. So that although the immediate appearance of bad ſymptoms does moſt certainly imply miſchief of ſome kind or other, yet, on the other hand, no man ought to ſuppoſe his patient free from hazard, either becauſe ſuch ſymptoms do not ſhew themſelves at firſt, or becauſe they appear to be but ſlight: they which come on late, or appearing ſlight at firſt increaſe gradually, being full as much to be dreaded as to conſequence as the more immediately alarming ones; with this material difference between them, that the one *may* be the conſequence of a mere concuſſion of the brain, and may by means of quietude and evacuation go quite off; whereas, the other being moſt frequently owing to an extravaſation of lymph, (tho' ſometimes of blood alſo) within the ſubſtance of the brain, are very ſeldom removed by art.

Extravaſations of any kind, and wherever ſituated within the cranium, are very hazardous, and much more frequently end fatally than happily; but conſidered as relative to the art of ſurgery, that which conſiſts of merely fluid blood ſituated between the cranium and dura mater is certainly the beſt, as it is the neareſt to the ſurface, and admits the greateſt probability of being relieved by perforation of the ſkull: grumous or coagulated blood, although in the ſame ſituation, by being moſt frequently adherent to the membrane, is not ſo readily diſcharged as the preceding, and therefore more likely to prove deſtructive: and all thoſe which are either under the meninges, or within the cavities or ſubſtance of the brain, as they are very ſeldom within our exact knowledge, ſo they are alſo generally beyond the reach of our art.

The method of treating people under theſe unhappy circumſtances is ſomewhat different, according to the ſuppoſed or moſt probable nature of the complaint, and according to the ſymptoms and appearances which it produces, or which accompany it. When the ſymptoms which imply a preſſure made on the brain or nerves have been occaſioned merely by a ſhake or concuſſion, and neither blow nor other external violence has been offered to or received by the head, we have no rule whereby to form any other than a general opinion; no mark which can point out to us, either the preciſe nature of the diſeaſe, or its particular ſituation; conſequently we have no direction from what part of the head to remove the ſcalp, or where to apply a perforating inſtrument, and therefore no authority for perforating at all. In this caſe, the only chance of relief is from phlebotomy and an open belly; by which we may hope ſo to leſſen the quantity of the circulating fluids as to aſſiſt nature in the diſſipation or abſorption of what has been extravaſated. This is an effect which, although not highly improbable in itſelf, yet is not to be expected from a ſlight or trifling application of the means propoſed. The uſe of them muſt be proportioned to the hazard of the caſe. Blood muſt be drawn off freely and repeatedly, and from different veins, the belly muſt be kept conſtantly open, the body quiet, and the ſtricteſt regularity of general regimen muſt be rigidly obſerved. By theſe means, very alarming ſymptoms have now and then been removed, and people in ſeemingly very hazardous circumſtances have been recovered. Inſtances of theſe ſucceſſes are not indeed ſo frequent as we could wiſh, but they have been ſufficiently ſo to warrant the attempt, eſpecially in caſes where there are no indications to authorize the uſe of any other. But when the ſymptoms of extravaſation are the conſequence of ſuch external violence as leaves a mark where it was inflicted, and when the ſcalp is ſo bruiſed or wounded as to ſhew the place where, we then have ſome degree of aſſiſtance, both in forming a judg-

a judgment of the moſt probable nature of the complaint, and in uſing the means moſt likely to prove ſucceſsful in its relief. For if the effuſion has been the conſequence of the ſtroke which the head has received, and ſuch effuſion is made immediately under the part ſo ſtricken, the perforation of the cranium in this place may give diſcharge to the extravaſated fluid; and the wound or bruiſe in the ſcalp ſhews us the point from whence we ought to remove a portion of it, in order to perforate the cranium. This I ſay is ſometimes the caſe, and the conſequence is ſometimes ſo fortunate that we ſave a periſhing patient. But, although it does now and then happen that we are ſo lucky, yet ſuch ſucceſs is by no means certain or to be depended upon. Every thing relative to this kind of diſorder is fallible and uncertain; and though the extravaſation is ſometimes found immediately under the external mark, yet it often happens that it is not, and that the effuſion is made in a part diſtant from that mark, and to which we have nothing to lead us. Upon the whole, although a bruiſe or wound of the ſcalp does not in theſe caſes neceſſarily or certainly point out the ſeat of an extravaſation, yet when bad ſymptoms urge, and evacuation has been fully and unſucceſsfully tried, ſuch mark may be deemed a ſufficient though not unerring authority for making farther enquiry, by removing the ſcalp and perforating the cranium: for this is a kind of caſe in which we are not to expect certainty, and in which we muſt be content with ſuch information as we can obtain. The opportunities which we have of being ſerviceable are but few; we ſhould therefore ſuffer none to eſcape, but embrace even poſſibility. The general advice given by Fabritius ab Aquapendente* is applicable to no part of ſurgery more than to this; in which the loſs of a very ſhort ſpace of time is often abſolutely irretrievable.

If

* "In vulneribus quæ natura ſua admodum periculoſa ſunt, peſſimum eſt expectare "prava ſymptomata; & tunc demum providere, cum forſitan occaſio præteriit, nec "amplius providere licet."

FAB. ab AQUAPENDENTE.

If the extravaſation be of blood, and that blood be in a fluid ſtate, ſmall in quantity, and lying between the ſkull and dura mater, immediately under or near to the place perforated, it may happily be all diſcharged by ſuch perforation; and the patient's life may thereby be ſaved; of which many inſtances are producible. But if the event does not prove ſo fortunate, if the extravaſation be ſo large or ſo ſituated that the operation proves inſufficient, yet the ſymptoms having been urgent, general evacuation having been uſed ineffectually, and a wound or bruiſe of the ſcalp having pointed out the part which moſt probably received the blow; although the removal of that part of the ſcalp ſhould not detect any injury done to the bone, yet the ſymptoms ſtill ſubſiſting, I cannot help thinking, that perforation of the cranium is, in theſe circumſtances ſo fully warranted, that the omiſſion of it may truly be called a neglect of having done that which might have proved ſerviceable, and, *rebus ſic ſtantibus*, can do no harm. It is very true, that no man can beforehand tell whether ſuch operation will prove beneficial or not, becauſe he cannot know the preciſe nature, degree, or ſituation of the miſchief; but this uncertainty, properly conſidered, is ſo far from being a diſſuaſive from the attempt, that it is really a ſtrong incitement to make it; it being full as impoſſible to know that the extravaſated fluid does *not* lie between the ſkull and dura mater, and that under the part ſtricken, as that it *does*; and if the latter ſhould be the caſe, and the operation be not performed, one, and moſt probably the only means of relief, will have been omitted.

Morgagni, in his book de Cauſis et Sedibus, &c. has treated this ſubject expreſly, and has enumerated all the objections which may be made to the perforation of the cranium, in the caſe of effuſion of fluid within * it, but among others he has mentioned a popular one, which

* "Nam ut ſigna ſint, ex quibus liceat ſuſpicari ſanguinem intra calvariam eſſe effu-
" ſum, quis ſcire pro certo poſſit, an re vera; et ſi hoc etiam ſciret, in quam partem ef-
" fuſus ſit, & quod conſequitur, ubi ei: Et perterebrandum, &c.

"Nam

which prevails much among his countrymen, viz. the fear of having been thought to have deſtroyed thoſe, whom in the nature of things they could not ſave, "ne ſic occiſi, qui ſervari non potuerant, vide-"rentur." With all poſſible deference to ſo able a man, I muſt ſay, that this does not ſeem to me to be by any means a good reaſon, or one which ought to be formed into a maxim for practitioners: it is founded on the weakneſs and incapacity of thoſe who pretend to judge of what they do not underſtand, and therefore ſhould never be embraced through a ſelf-intereſted principle by thoſe who know better. If ſuch rule was univerſally admitted, we ſhould often be prevented from employing a critical opportunity, or uſing what in many caſes is the unicum remedium, not only in this diſeaſe but in many others. The caſe of Ptolomey, cited by him from Livy, although brought as a ſtrong corroboration of his own opinion, really can prove nothing, unleſs it could be made to prove that terebration was the cauſe of, or at leaſt accelerated, the patient's death; which it can by no means be made to do. No man, who is at all acquainted with this ſubject, will ever venture to pronounce or promiſe ſucceſs from the uſe of the trephine, even in the moſt apparently ſlight caſes; he knows that honeſtly he cannot; it is enough that it has often been ſucceſsful where and

"Nam præter unum, qui majorem fortaſſe exterius dolorem moveat, alia eſſe poſ-"ſunt loca, ſub quibus majus revera lateat internum vitium.

"In cognoſcendo quam fallaces ſæpe ſint conjecturæ, vel hinc apparet, quod & ſi pars "ipſa icta, ab ægro indicatur, imo ecchymoſi & tumore ſe ipſam præclare indicet, non "raro tamen caſus incidunt, in quibus alia pars ſit contuſa, alia in quam effuſio facta "ſit.

"Satis jam ſuperque intelligis caſus incidere, in quibus aut nulla, aut tam levia, inter "initia ſe offerunt, effuſi intra cranium ſanguinis ſigna, tot autem, & tam gravia poſt "longum intervallum confeſtim ſe ingerunt, ut neque primo illo opportuno tempore æger "ex timore periculi, ut terebram admittat, neque extremo ſperare poſſent medici, opem "ſe per eam allaturos, tam longo ſpatio & tam perniciòſis indiciis extantibus."

MORGAGNI de Cauſis & Sed. Morbor.

and when every other means have failed. The true and juſt conſideration is this; Does the operation of perforating the cranium in ſuch caſe add at all to that degree of hazard which the patient is in before it is performed? or can he in many inſtances do well without it? If it does add to the patient's hazard, that is certainly a very good reaſon for laying it aſide, or for uſing it very cautiouſly; but if it doe not (which I verily believe,) and the only objection made to it is, that it frequently fails of being ſucceſsful, ſurely it cannot be right to diſuſe that which has often been not only ſalutary but the *cauſa ſine qua non* of preſervation; merely becauſe it is alſo often unſucceſsful, that is, becauſe it is not infallible.

I ſhould be extremely ſorry to ſay any thing which might miſlead my reader, but I cannot help thinking, that dark and obſcure as this part of ſurgery is, yet there are ſometimes appearances and circumſtances, which may be ſaid poſitively to indicate the operation, among which I reckon the ſpontaneous detachment of the pericranium from the ſkull, in conſequence of a heavy blow, attended with ſymptoms of ſtupefaction or loſs of ſenſe.

Whenever the dura mater is ſeparated from its attachment to the inner ſurface of the cranium, the pericranium covering the outer part of the ſame bone is generally detached alſo. When this ſeparation is produced by the formation of matter, in conſequence of inflammation, the tumefaction of the ſcalp, which denotes this effect, appears ſome days after the violence has been received, and is always accompanied with a ſymptomatic fever. The effuſion of a conſiderable quantity of extravaſated blood on the ſurface of the dura mater, as it abſolutely ſeparates that membrane from the bone, and cuts off all communication between that part and the ſcalp, ſo it does in the ſame manner oblige the pericranium to quit its attachment to the ſkull, of which I have remarked

frequent

frequent inſtances; and I have alſo moſt frequently obſerved, that the blood in ſuch caſes has been coagulated, and very adherent to the membrane. Now if this obſervation ſhould be found to be moſt frequently true, that is, if a detachment of the dura mater from within the ſkull, by means of an extravaſation, be found to be moſt frequently accompanied by a detachment of the pericranium on the outſide, have we not thereby an indication both why and where we ought to perforate? The operation *may* not be ſucceſsful, but deſperation cannot be ſubmitted to while there is the moſt extreme degree of *probability* of being ſerviceable.

A free diſcharge by means of it may produce a cure, or it may prove only a temporary relief, according to the different circumſtances of different caſes: the diſappearance or even the alleviation of the moſt preſſing ſymptoms is undoubtedly a favourable circumſtance, but is not to be depended upon as abſolutely portending a good event; either a bloody or limpid extravaſation may be formed or forming between the meninges, or upon or within the brain, and may prove as certainly pernicious in future as the more external effuſion would have done had it not been diſcharged; or the dura mater may have been ſo damaged by the violence of the blow as to inflame and ſuppurate, and thereby deſtroy the patient. The complaints ariſing from extravaſation, and from ſuppuration, are (as I have already at large obſerved) very different and diſtinct from each other; the former may be relieved, or even totally removed, and the latter not prevented, nor indeed be capable of prevention; of this every practitioner ſhould be aware, leſt he expect and promiſe too much.

The nearer the extravaſated fluid lies to the cranium the better; therefore that which is ſituated between the ſkull and dura mater is, cæteris paribus, the moſt favourable of any. If the diſeaſe lies between the dura and pia mater, mere perforation of the ſkull can do nothing;

and therefore if the ſymptoms are preſſing, there is no remedy but diviſion of the outer of theſe membranes. The diviſion of the dura mater is an operation which I have ſeveral times ſeen done by others, and have often done myſelf; I have ſeen it, and have found it now and then ſucceſsful; and from thoſe inſtances of ſucceſs, am ſatisfied of the propriety and neceſſity of its being ſometimes done: but let not the practitioner, who has not had frequent opportunity of ſeeing theſe kinds of things, preſume, from the light manner in which this neceſſary operation has been ſpoken of by a few modern writers, that it is a thing of little conſequence; for it moſt certainly is not. Wounds of the membranes of the brain, by whatever body inflicted, or in whatever manner made, have always been deemed, and (which is more to the purpoſe) have always been found, to have been hazardous. There is indeed ſome difference between a wound made by a clean lancet or knife, and one made by bone, bullet, or any thing which bruiſes or tears; but this relates only to the manner, the part wounded is the ſame in all; and whether the dura mater be divided by a lancet, or by a fragment of bone, or any other body, it is equally divided, and the air is let in in the ſame manner on the pia mater, or brain, which become thereby ſubject to all the ills which ſuch wound, or ſuch expoſition are capable of cauſing.

Authors indeed do every now and then tell us ſtrange ſtories, and give us ſtrange accounts of inciſions made into the meninges and brain in ſearch of foreign bodies, of extravaſated fluids, &c. but let the young practitioner read theſe relations with ſome reſerve of faith, and recollect that the excellent advice given by a very able man, "homines non admiratione afficere, ſed eis utiliora docere," is not always attended to by writers. Caution and fear are different things; where any good can be done, it ought to be attempted by every practicable and juſtifiable means; but where no good is reaſonably to be expected, there is no authority for doing any thing. The diviſion of the dura

mater

mater I have ſeen to be neceſſary, and I have ſeen it to be ſucceſsful; but all wounds of it are far from being matters of indifference. Every chance of life is to be embraced, and a good ſurgeon will never heſitate to execute whatever appears feaſible, or even poſſibly beneficial; but at the ſame time he will not act without ſome ſuch kind of warranty as ſhall prove that his patient's benefit was his one object, and will take care that neither his prognoſtic nor his conduct ſhall expoſe him juſtly to the cenſure of being either ignorant, unfeeling, or fool-hardy.

Upon the removal of a piece of bone by means of the trephine, if the operation has been performed over the part where the diſeaſe is ſituated, and the extravaſation be of the fluid kind and between the cranium and dura mater, ſuch fluid, whether it be blood, water, or both, is immediately ſeen, and is partly diſcharged by ſuch opening; if, on the other hand, the extravaſation be of blood in a coagulated or grumous ſtate, it is either looſe, or in ſome degree adherent to the dura mater; if the former of theſe be the caſe, it is either totally or partially diſcharged at the time of or ſoon after the operation, according to the quantity or extent of the miſchief; if the latter, the perforation diſcovers, but does not immediately diſcharge it. In both inſtances, the conduct of the ſurgeon, with regard to repetition of the operation, muſt be determined by the particular circumſtances of each individual caſe; a large extravaſation muſt neceſſarily require a more free removal of bone than a ſmall one; not only on account of freedom of diſcharge, but on account of larger detachment of dura mater; and a grumous or coagulated extravaſation requires a ſtill more free uſe of the inſtrument, not only becauſe the blood in ſuch ſtate is diſcharged with difficulty, but becauſe the whole ſurface of the dura mater ſo covered is always put under the neceſſity of ſuppurating, which ſuppuration has but one chance of a happy event, and that derivable from the free uſe of the perforator.

When the extravaſation is not between the cranium and dura mater, but either between the meninges, or in the ventricles of the brain, the appearances are not only different from the preceding ſtate of the caſe, but from each other.

When the extravaſated fluid lies between the ſkull and dura mater, as ſoon as that extravaſation is diſcharged, or the grumous blood has been wiped off, the dura mater appears flaccid, eaſily yields to or does not reſiſt the impreſſion of a finger, and (the diſcharge being made) enjoys that kind of motion, that elevation and depreſſion, which our fathers ſuppoſed it to have naturally and always, but which is only the conſequence of the circulation through the brain, and the artificial removal of the piece of bone. But when the extravaſation is ſituated between the meninges, or on the ſurface of the brain, the appearance is not the ſame. In this caſe there is no diſcharge upon removing the bone, and the dura mater, inſtead of being flaccid and readily obeying the motion of the blood, appears full and turgid, has little or no motion, and preſſing hard againſt the edges of the perforation, riſes into a kind of ſpheroidal form in the hole of the perforated bone. If the extravaſation be of the limpid kind, the membrane retains its natural colour; but if it be either purely fluid blood, or blood coagulated, and the ſubject young, the colour of the membrane is ſo altered by what lies under it, that the nature of the caſe is always determinable from this circumſtance.

Be the extravaſated fluid what it may, it has no natural outlet; abſorption was the only chance the patient had whereby to get rid of it without an operation, and that we muſt now ſuppoſe to have failed; an artificial opening therefore muſt be made, by the diviſion of the dura mater, and perhaps of the pia alſo. This operation, under the circumſtances and appearances already mentioned, is abſolutely neceſſary and has been ſucceſsful; it is performed to give diſcharge to what

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cannot be got rid of by any other means, and conſiſts in a diviſion of the membrane or membranes, made in a crucial form with a point of a lancet. The operation in itſelf is extremely ſimple and eaſy, but the patient is thereby put into the ſtate of one whoſe meninges have been wounded, with only this difference, that the wound made for this purpoſe is ſmooth and ſimple, and inflicted with the leaſt poſſible violence; whereas an accidental wound of the ſame parts may be lacerated, contuſed, and attended with circumſtances which muſt aggravate the evil, and may induce worſe conſequences.

Of commotion or concuſſion of the ſolid parts of the brain, we have only a negative kind of proof, and therefore are ſtill more in the dark, than we are with regard to extravaſation.

Very alarming ſymptoms, followed ſometimes by the moſt fatal conſequences, are found to attend great violences offered to the head; and upon the ſtricteſt examination both of the living and the dead, neither fiſſure, fracture, nor extravaſation of any kind can be diſcovered. The ſame ſymptoms, and the ſame event, are met with when the head has received no injury at all ab externo, but has only been violently ſhaken; nay, when only the body or general frame has ſeemed to have ſuſtained the whole violence. It is a commonly received opinion, that a concuſſion of the brain is always in proportion to the reſiſtance which the cranium makes; that if the latter ſuſtains a conſiderable degree of fracture, the former is but ſlightly injured, and that the concuſſion is greateſt when the ſkull is leaſt hurt. This may ſometimes be the caſe; violent and even fatal commotions of the brain happen when no injury has been done to the ſkull, and very large and terrible fractures

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are ſometimes unattended with any ſymptoms of concuſſion; all this is ſometimes true, but the poſition can by no means be admitted as a general principle, whereon to form our judgment, or whereby to regulate our conduct, experience frequently contradicting it.

The ſymptoms attending a concuſſion are generally in proportion to the degree of violence which the brain itſelf has ſuſtained, and which indeed is cognizable only by the ſymptoms. If the concuſſion be very great, all ſenſe and power of motion are immediately aboliſhed, and death follows ſoon: but between this degree and that ſlight confuſion (or ſtunning, as it is called) which attends moſt violences done to the head, there are many ſtages. Sometimes a concuſſion produces the ſame kind of oppreſſive ſymptoms as an extravaſation, and the patient is either almoſt or totally bereft of ſenſe: at other times no ſuch ſymptoms attend, but the patient gets no ſleep at all, has a wild look, an eye much like to that of a perſon who has long watched through apprehenſion and anxiety, talks much and very inconſiſtently, has a hard labouring pulſe, ſome ſmall degree of fever, and ſometimes an inclination to vomit; if not retained, the patient will get out of bed, and act with a kind of frantic abſurdity, and appears in general much hurt by a ſtrong light. A debility of underſtanding, an idiot look, a failure of memory, a paralytic affection of ſome one part or limb, the loſs of ſenſe, ſpaſm, reſolution or rigidity of ſome one part or muſcle, are often the conſequence of it. Theſe complaints are ſometimes cured, but ſome of them do ſometimes remain through the reſt of life.

To diſtinguiſh between an extravaſation and a commotion by the ſymptoms only is frequently a very difficult matter, ſometimes an impoſſible one. The ſimilarity of the effects in ſome caſes, and the very ſmall ſpace of time which may intervene between the going off of the one and acceſſion of the other, render this a very nice exerciſe of the judgment.

judgment. The firſt ſtunning or deprivation of ſenſe, whether total or partial, may be from either, and no man can tell from which; but when theſe firſt ſymptoms have been removed, or have ſpontaneouſly diſappeared, if ſuch patient is again oppreſſed with drowſineſs, or ſtupidity, or total or partial loſs of ſenſe, it then becomes moſt probable that the firſt complaints were from commotion, and that the latter are from extravaſation; and the greater the diſtance of time between the two, the greater is the probability not only that an extravaſation is the cauſe, but that the extravaſation is of the limpid kind, made gradatim, and within the brain.

Whoever ſeriouſly reflects on the nature of theſe two cauſes of evil within the cranium, and conſiders them as liable to frequent combination in the ſame ſubject, and at the ſame time conſiders, that in many inſtances no degree of information can be obtained from the only perſon capable of giving it (the patient), will immediately be ſenſible, how very difficult a part a practitioner has to act in many of theſe caſes, and how very unjuſt it muſt be to call that ignorance, which is only a juſt diffidence ariſing from the obſcurity of the ſubject, and the impoſſibility of attaining materials to form a clear judgment.

When there is no reaſon to apprehend any other injury, and commotion ſeems to be the ſole diſeaſe, plentiful evacuation by phlebotomy and lenient cathartics, a dark room, the moſt perfect quietude, and a very low regimen, are the only means in our power; and are ſometimes ſucceſsful.

Having in the preceding ſheets frequently ſpoken of the trephine, I have only to add, that if ſuch operation be attended with ſucceſs, that is, if an extravaſated fluid be thereby diſcharged, a depreſſed bone elevated, matter which had been formed between the ſkull and dura mater let out, or the inflammatory tenſion of the membrane prevented, in ſuch manner as to reſcue the patient from the danger he was in from

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ſuch accident; in ſuch caſes, I ſay, that the bare dura mater readily obeys the motion of the blood thro' the brain, and is freely elevated and depreſſed; by degrees it loſes its bright ſilver hue and becomes purulent and ſloughy, and then caſting off this ſlough is covered by a granulation of new fleſh, of firm conſiſtence and florid red colour; a moderate quantity of good matter is diſcharged daily, and the new incarnation riſes gradually through the perforation, until it gets above the edges of it, when joining with that which either has ſprung from the ſurface of the bare cranium, or which has thrown off from thence a ſmall exfoliation, they together make a firm cicatrix. During all this time the patient is generally free from fever or pain, gets good ſleep, has a natural appetite, and ſeems as near to being in health as his circumſtances can permit.

On the other hand, if the miſchief be ſuch that all means prove ineffectual, the appearances are very different. The dura mater, inſtead of caſting off a thin ſlough and incarning kindly, becomes hard, tenſe, and foul; in a few days it generally thruſts up an ill-natured fungus, which preſſing hard againſt the edges of the perforation, prevents the diſcharge from within; the bare bone becomes blackiſh or deeply yellow, and the edges of the ſore in the ſcalp are painful, looſe, flabby, and have no connection with the bone on which they lie; the diſcharge is a thin ſtinking gleet, and large in quantity; the patient is hot, thirſty and ſleepleſs; the tongue is black, the pulſe hard and quick; ſometimes a delirium, and ſometimes frequent ſpaſms diſorder and ſhake his whole frame; his countenance is fluſhed and has a yellow tint, his eyes loſe all their natural brightneſs and ſeem ſunk in their orbits, and his rigors, which were at firſt ſlight and few, become more frequent and more ſevere as his diſſolution approaches. A ſlight degree of theſe ſymptoms is ſometimes got the better of by proper care and treatment; but if they are far advanced, or run very high,

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we may uſe the words of a very excellent writer on this ſubject, I mean Berengarius Carpenſis: * *Hic caſus eſt de his, e quibus non evadunt aliqui, niſi nutu dei.*

* The ſentiments of a very ancient writer on this matter are ſo very juſt and appoſite, that I hope the reader will excuſe the length of the quotation.

" Qui ſaneſcere poſſunt, vel perituri ſunt, ex his conjicere eſt; plurimum quidem ex " ipſo vulnere, deinde & ex reliquo corpore.

" Salubriter ſe habentium notæ ſunt, ulcus non dolens, cerebrique membrana natura- " lem colorem, ac motum ſervans, & ulcus poſt ſuppurationem imminui. Pus album, " æquale, modice craſſum, non maleolens. Ulcus quod initio album apparuit, poſt ali- " quod tempus rubeſcere, carnem milio ſimilem producere, ſquamulaſque ſuis temporibus " emittere; ſine perturbatione ſomnum capere; ſine febre eſſe, cibum appetere; aſ- " ſumpta digerere; æquas excretiones fieri; glandulas, quæ primis diebus apparuerant, " aut eryſipelas cito diſſolvi.

" Eos, qui periclitantur, cognoſcere licet tum aſpectu, tum ex iis quæ vulneri cæte- " roque corpori accidunt, & iis quæ excernuntur. Color igitur plerumque languidus & " permanens, periculoſus, oculique concavi & extantes, &c. Ulcus dolere, magis in- " terdiu, retorridum fieri, atque omni plerumque tumore carere, vel ſaniem manare te- " nuem ac male olentem; oraſque ſectæ carnis admodum rubras & flaccidas eſſe, atque " ubi magis reflexæ ſint, tunc abſcedere cutem ab oſſe moleſtum eſt, membranamque " vulneratam immobilem eſſe, exalbidam vel lividam apparere, vel nigram, vel pluri- " mum inflammatam aut procidentem, purgatamque, iterum ſponte non ob aliqua re " externa ſordeſcere. ORIBASIUS de Signis.

" Spem vero certam faciunt, membrana mobilis ac ſui coloris, caro increſcens rubi- " cunda, facilis motus maxillæ, atque cervicis.

" Mala ſigna ſunt membrana immobilis, nigra vel livida, vel aliter coloris corrupti, " dementia, acris vomitus, nervorum diſtenſio vel reſolutio.—Caro livida, maxillarum " atque cervicis rigor." CELSUS.

CASE XXXIII.

A Young fellow about twenty-four years old was thrown by the ſwing of a crane at the water-ſide from a window two ſtories high, and pitched his head on a ſugar hogſhead. He was taken up ſenſeleſs, and brought in that ſtate to St. Bartholomew's hoſpital.

He was immediately let blood freely, and his head being firſt clean ſhaved was very carefully examined, but no external mark of violence was found. Next morning he was bled again, and the ſame operation was repeated in the evening of that day, and twice in the courſe of the third. On the fourth day both the temporal arteries were opened, and bled freely. On the fifth day he died, his ſymptoms not having remitted in the ſmalleſt degree. The cranium was perfectly uninjured. The dura mater every where adherent, and no fluid of any kind between it and the ſkull. Between the dura and pia mater was a conſiderable quantity of fluid blood, and principally toward the lower part of the brain.

CASE XXXIV.

A Hackney coachman was thrown from his box in Holborn, and fell on his head, as it was thought. He became immediately inſenſible, and was brought ſo to the hoſpital. No mark of violence was to be found on any part of his head, and therefore, although his ſymptoms were ſuch as rendered an extravaſation moſt probable, yet there was no authority for ſetting on the inſtrument on any particular part. Every thing was done for him both by the phyſician and myſelf, from which

which any advantage might reaſonably be expected; but on the third day he expired, having never ſhewed any ſigns of ſenſe.

All the ſpace between the frontal bone and the dura mater was covered with grumous blood, firmly adherent to the latter.

CASE XXXV.

A Bricklayer's labourer fell from a high ſcaffold, broke one arm and one thigh, and was brought to the hoſpital about two hours afterward in a ſtate of ſtupidity. When his arm and thigh were put to rights his head was examined, but no mark of miſchief diſcovered. He was bled freely, and ſtools procured on each day for four, but he continued in the ſame ſtate; on the fifth a ſmall tumor aroſe on the right ſide of his head. The ſcalp was removed, and the bone being found bare, it was immediately perforated. The perforation made way for a large diſcharge of blood, which had been contained between the dura mater and ſkull. On the firſt and ſecond day from this operation he remained the ſame; blood was drawn from ſome part of him on each, and the diſcharge continued large and free through the opening made in the bone. On the third day from the application of the trephine, he became toward evening ſomewhat ſenſible. On the fourth, having taken a laxative medicine, he had a ſmart purging, which laſted ſome hours. On the ſixth he was quite calm and ſenſible, but being reduced to a very low ſtate by his free and frequent evacuations, it was thought right to give him the cortex. This agreed well with him, and from this time he had no other difficulty or trouble.

CASE XXXVI.

A Boy about ten years old, climbing up a ladder which was ſet too perpendicularly, fell from an height of more than twenty feet; he lay ſome time before he was found, and then was carried home perfectly void of ſenſe. In about three hours after the accident I ſaw him. He lay quite ſtupid and ſenſeleſs, now and then vomited, had a hard, full labouring pulſe, and an obſtructed reſpiration. No mark of violence appeared on his head. He was bled freely, and had a ſtimulating glyſter, which procured a free diſcharge. During three days he was let blood twice a day; on the fourth, a ſmall degree of tumefaction appeared on the right ſide of his head near to the ſagittal ſuture; it was not very manifeſt, neither did it appear to contain any conſiderable quantity of fluid, but the very deſperate circumſtances the child was in, induced me to open it, and, finding the ſkull bare, to perforate. The dura mater was covered with blood, which diſcharged freely both at the time of the operation, and during all the next day. On the third day from the operation, he was ſtill inſenſible. A ſecond perforation was made juſt below the firſt, and a third on the other ſide of the ſuture. Blood was diſcharged freely from all three. He was dreſſed lightly, and his pulſe being ſtill ſtrong, more blood was drawn from one of the jugulars. The next day he was rather better, but far from ſenſible. The day following that, he recovered his underſtanding, and could make ſigns for what he wanted. It was near a week more before he got his ſpeech, but in the end he got perfectly well.

CASE XXXVII.

A Boy between three and four years old, the ſon of a merchant in my neighbourhood, was at play with his brother on a bed, and fell from thence on a ſoft bedſide carpet. He pitched on his head, and complained immediately of being ſick and giddy, but having vomited, was ſoon after ſo well that no farther notice was taken of his fall. On the fourth day from this, his ſickneſs and giddineſs returned. Dr. Lee was ſent for, who not regarding the fall as having any ſhare in his complaint, gave him an emetic, and ordered him ſome of thoſe medicines which are called nervous. For the ſpace of five days from this time, he continued to be now and then ſick and giddy, and was very unwilling to ſtir or be ſtirred. On the eleventh he complained that he could not ſee, and that evening had a ſort of fit. On the thirteenth his right arm became uſeleſs. On the fifteenth he could not ſtand. From this evening he became ſtupid; and on the eighteenth expired.

Between the dura and pia mater was a conſiderable quantity of bloody ſerum about the baſis of the brain.

CASE XXXVIII.

A Woman came to my houſe, complaining that her huſband had kicked her down ſtairs, and had broke her ſkull. On the back part of her head was a ſmall wound, but the pericranium was not divided, nor was there any reaſon to ſuppoſe the bone to be hurt. For twelve days ſhe remained without any general complaint; but on the thirteenth ſhe began to be giddy and dim-ſighted.

I took

I took her into the hoſpital, where ſhe was taken all poſſible care of; but ſhe became firſt paralytic, and then comatoſe, and ſo died. The ventricles of the brain were full of extravaſated ſerum, and near the origin of the medulla oblongata was a large lump of firmly coagulated blood.

CASE XXXIX.

A Carpenter's labourer in Blackfryers fell from a ſcaffold of a conſiderable heighth, and in his way down, ſtruck a piece of timber, which following him hit him on the head. The man fell on his breech. He was brought to the hoſpital ſenſeleſs. The mark on his head made by the timber was ſcarcely viſible, and did not imply any miſchief underneath. He was freely let blood, and his body emptied by a glyſter adminiſtered that day. The next day more blood was drawn from one jugular; and the third the ſame operation repeated. On the fourth he ſpake, and on the fifth was ſo ſenſible as to give an account of the place from whence he fell. On the ſixth, ſeventh, eighth, ninth, tenth, and eleventh, he was free from complaint, except on the two laſt he was too much inclined to doſe. On the twelfth he found ſome difficulty in pronunciation, and ſaid, that it was with great difficulty that he could keep himſelf awake. As his pulſe would very well bear it, more blood was drawn away by opening the temporal artery, and a bliſter was applied to his neck. On the fifteenth he could hardly ſpeak at all, and was never awake unleſs diſturbed for that purpoſe. On the eighteenth he loſt the uſe of his left ſide, and on the twentieth died.

About the lower part of the brain was found a ſmall quantity of bloody ſerum, and all the ventricles were filled with a clear lymph.

CASE

CASE XL.

A Boy about fifteen was thrown over the head of a horſe, who fell down with him in Smithfield. There was on the ſide of his head a large wound with a bare parietal bone; and although there was no appearance of fracture, yet the violence having been great, and the boy being perfectly ſtupid, I immediately perforated the bare bone, ſuſpecting an extravaſation on the dura mater. That membrane was perfectly fair and adherent, nor was there any appearance of extravaſation either upon or under it. The next day he was ſtill inſenſible. I examined the membrane again very carefully, in order to ſee whether there was any authority for dividing it, but could find none. Blood was drawn from different parts in large quantity, but to no purpoſe; he lived three days as it were in a deep ſleep, and then died. There was no injury done to the ſkull; no extravaſation of either blood or ſerum, either upon or between the membranes, nor any unnatural appearances in the cavities of the brain: but upon the plexus choroides was a lump of coagulated blood, near as big as half a ſmall cheſnut.

In the courſe of theſe papers, I have more than once ſaid, that although the ſymptoms ariſing from preſſure made on the brain and nerves, or on the meninges, were uniform and clear and perfectly diſtinct from thoſe cauſed by inflammation, yet that they very ſeldom indicate what kind of body ſuch preſſure was made by; whether blood, water, or bone; and conſequently, that although the diſorders proceeding from preſſure were perfectly diſtinguiſhable from thoſe cauſed by inflammation, yet they were not at all or very ſeldom ſo with regard to each other. Some of the immediately preceding caſes are proofs, with regard

to blood and lymph, and what follow will I think in ſome degree prove that the ſymptoms are the ſame, when they are cauſed by bone, or by blood and bone together.

CASE XLI.

A Child about nine years old received a blow from a cricket-bat on the upper part of his forehead, which brought him to the ground, and deprived him of ſenſe. I found him with a conſiderable tumor on his forehead, and conſidering the ſtate he was in; would have removed immediately a part of the ſcalp; but a dabbler in ſurgery, who was a relation, undertook to cure him by an application. On the third day I was ſent for again, and found him nearly in the ſame ſtate as I left him. I divided the ſcalp, and found a fracture with depreſſion. By means of the trephine and elevator the depreſſed part was raiſed, and the dura mater being found in a very good ſtate, and no apparent extravaſation in the caſe, nothing more was done at that time. Proper medicines were ordered to procure ſtools. The next day his ſymptoms were the ſame, except that his pulſe was leſs labouring, and he had not the apoplectic ſtertor, which he had till then. I examined the bone, which lay perfectly ſmooth, nor was the dura mater at all elevated into the perforation. Blood was freely drawn from the temporal arteries, and a ſtimulating glyſter adminiſtered. On the fifth day no alteration. I applied a trephine in the middle of that part of the bone which had been depreſſed and elevated. The dura mater was thinly covered with grumous blood, which being gently wiped away more of the ſame appeared; for two or three days this diſcharge continued in ſmall quantity; the boy gradually recovered his ſenſes, and in due time got well.

CASE

CASE XLII.

A Young woman was thrown out from a country waggon, upon a broad flat pavement, and ſaid to have pitched upon her head. She was inſtantly deprived of ſenſe, and brought to the hoſpital in that ſtate. Her head was immediately ſhaved and examined, but found to be ſo abſolutely free from all mark of violence, that I was in doubt of the truth of the account given of her. She was freely let blood, and ſome medicines directed to be got down, in order to empty her. The next day ſhe was in the ſame ſtate. More blood was drawn off, and her cathartic repeated. The third day, ſhe being exactly the ſame, both the temporal arteries were opened. On the fourth, there being no alteration, I determined to apply a trephine on that part of her head, on which ſhe was ſaid to have fallen, and which when preſſed hard, ſeemed to produce ſuch motion in her as if it gave ſome pain.

In a caſe of leſs neceſſity this would hardly have been an authority, but here ſomething was to be attempted. I removed a large piece of ſcalp, and found the pericranium, though not detached abſolutely, yet not naturally or firmly adherent. I applied the trephine, and when I had worked a few ſeconds, I took out the inſtrument to clean it, but was much ſurprized to find in it a piece of the upper table of the ſkull. I put in my finger to feel what was underneath, and found that it touched the remaining table, which receded from the finger, and returned again upon removing it; and when I preſſed the ſaid looſe piece hard, the girl's whole frame was ſpaſmodically agitated. What was to be done? It appeared to me, that if all her ſymptoms were not cauſed by the preſſure of the looſe piece, yet they were certainly aggravated

gravated by it, that it muſt therefore be taken away at all events, and that it was much too large to be extracted at the preſent opening; beſide which, as it ran upward toward the ſinus, I ſhould not have choſen to run the riſque of an hæmorrhage from thence while the ſinus was covered with bone. I perforated all round the preſent opening with a ſmall trephine, in ſuch manner, that each perforation ſo bordered on the other as that the whole ſhould make one opening.

For near one half of the circle the outer table only came away in the inſtrument, leaving the inner looſe and covered with blood, but in all the lower part, the trephine went through both tables, and left the dura mater covered with grumous blood alſo. When the circle was finiſhed, the looſe portion was eaſily taken away; its upper part made a part of the ſagittal ſuture, but no blood followed its ſeparation. The dura mater under the whole was thinly covered with grumous blood. Next day ſhe retained her urine, and opened her eyes. In two more ſhe recovered her ſpeech, and became as rational as I ſuppoſe ſhe ever had been; and would in all probability have done well, as far as regarded the evils produced by mere preſſure; but after ſome days matter formed between the detached dura mater and the ſkull, and the ſymptomatic fever uſually accompanying ſuch miſchief, came on with ſuch rapidity, that all the efforts of art were vain.

CASE

CASE XLIII.

A Porter at work at the water-ſide, was knocked down by a blow from an iron hook, at the end of the tackle belonging to a crane. He was ſenſeleſs for near half an hour, but after that was ſo well as to walk home. The next morning he loſt his ſight, and by the evening his ſpeech, and faculty of walking. In this ſtate he was brought to the hoſpital. He was largely let blood, and thoroughly emptied; and I intended, if theſe evacuations did not materially ſerve him, to have examined the ſtate of that part of the bone whereon the blow was received; but that night he died.

Upon examining his head, a piece of the inner table of the right os parietale, of about an inch and half in length, and not quite ſo broad, was found detached from the outer table, having a quantity of blood both between them and on the ſurface of the dura mater.

Theſe are the only inſtances which I have met with of fracture of the internal table alone; though I make no doubt, that ſome of thoſe who have been ſaid and thought to have been deſtroyed by concuſſion, have ſunk under this kind of miſchief.

OBSERVATIONS

ON THAT

DISORDER

OF THE

CORNER of the EYE,

COMMONLY CALLED

Fiſtula Lachrymalis.

OBSERVATIONS

THE

PREFACE.

BY *frequently converſing with ſome of that part of the profeſſion who come to* London *to attend the Hoſpitals, and to improve themſelves in the Art of Surgery, it has appeared to me that the* FISTULA LACHRYMALIS, *though a very common diſeaſe, is one with which many of them are very little acquainted, either with regard to its cauſe, ſeat, or method of cure. Some are totally ignorant of every thing relating to it, others who have an imperfect idea of its nature, and ſeat, are yet much at a loſs how to vary the method of treating it according to its different ſtates and circumſtances; upon which diſtinction the probability of a cure does often in great meaſure depend; for if thoſe means which are only proper in one ſtate of the diſeaſe be uſed in another, the patient will be fatigued to no purpoſe, and the ſurgeon by being frequently diſappointed will be inclined to think thoſe caſes incurable, which have only failed through his own miſmanagement.*

There is hardly any chirurgical diſorder which requires a more cloſe regard to all its appearances and variations than this does; and whoever expects to conduct it ſucceſsfully, muſt attend to it conſtantly: this is, perhaps, the great reaſon why it is ſo little underſtood; the object is too minute,

minute, and the proceſs often too long, to engage the attention; beſides which, it hardly comes under the name of an operation, the great and almoſt only object which they who come hither from the diſtant countries have in view; the operative part of ſurgery is what they have ſeen the leaſt of, and therefore they are the more deſirous of becoming acquainted with it: this deſire is a very laudable one, and ought certainly to be encouraged, but ſtill the operative part of ſurgery is far from being the whole of it; and I cannot help thinking, that by attending a little more to what is called common or practical ſurgery, our art might ſtill be conſiderably improved, practitioners rendered more expert, and mankind much benefited.

The merely curing diſeaſes is not all; that was done (ſooner or later) while ſurgery and anatomy were in their moſt imperfect ſtate, and while every branch of medicine laboured under many inconveniencies which are now happily removed; but the different methods in which chirurgical diſorders are treated, or their cures attempted, will make ſo conſiderable a difference in the confinement and ſufferings of the patient, as to be very well worth attending to.

It may poſſibly be thought foreign to my preſent purpoſe, but I cannot omit this opportunity of adding a few words on a ſubject which appears to me highly deſerving of ſome notice, as its influence may be very extenſive and very prejudicial; it is the falſe idea which the by-ſtanders at an operation generally have of chirurgic dexterity; *to which word they anex no other idea than that of quickneſs. This has produced a moſt abſurd cuſtom of meaſuring the motion of a ſurgeon's hand, as jockeys do that of the feet of a horſe, viz. by a ſtop-watch; a practice which though it may perhaps have been encouraged by operators themſelves, muſt have been productive of moſt miſchievous conſequences.* Tute et celeriter *are both very proper characteriſtics of a good chirurgic operation; but* tute *ſtands as it ſhould do, in the firſt place as the patient who ſuffers the*

ſmalleſt

malleſt injury, from the hurry of his operator, has no recompence from the reputation which the latter obtains from the by-ſtanders. In moſt of the capital operations unforeſeen circumſtances will ſometimes occur, and muſt be attended to; and he who, without giving unneceſſary pain from delay, finiſhes what he has to do in the moſt perfect manner, and the moſt likely to conduce to his patient's ſafety, is the beſt operator.

I have endeavoured to make the following tract as plain and as intelligible as I can; and if it ſhould appear prolix to thoſe who are already acquainted with the ſubject, I muſt beg leave to obſerve, that it was not written for their information; but if any of thoſe who were unacquainted with it before ſhould from hence gain any uſeful knowledge, my end will be anſwered, and I ſhall be very much pleaſed.

OF THE

FISTULA LACHRYMALIS.

SECT. I.

THE antient writers were in general ſo little acquainted with the anatomical ſtructure of the parts concerned in this diſeaſe, that both its cauſe, and ſeat, have been very erroneouſly repreſented by moſt of them; other diſorders, very different both from this and from each other, have been confounded under the ſame general appellation, and the means made uſe of toward obtaining a cure, being adapted to ſuch miſconceptions, were rough, painful, and moſt commonly ineffectual.

The fluid which perpetually moiſtens the eye, was ſuppoſed to be ſecreted by that ſmall eminence in the inner angle, now called the caruncule, and to flow from thence upward through the puncta lachrymalia*. The caruncule was by many thought to be the ſeat of the

* Fallopius, who has very accurately deſcribed the puncta lachrymalia, ſacculus, and duct, as well as the diſeaſe, has yet fallen into this common error. "Ad oculos ipſos ex "faucibus egrediens venio, in quibus primum prætermiſere anatomici duo foramina par-"va in angulo interna poſita, quarum, unum eſt in palpebra ſuperiori, alterum in "inferiori,

diſeaſe in queſtion, which was ſaid to be produced, either by a defluxion from the brain † on this part, or by an abſceſs formed within the body of it; or, by a lodgment of the tears, become acrid and corroſive in conſequence of ſuch ſtagnation ‡; while others looked upon it as a kind of encyſted tumor. The ſwelling in the inner corner of the eye, the frequently-attendant ophthalmy, the involuntary flux of ſerum down the cheek, the excoriation of the eye-lid, and the diſcoloured diſcharge upon preſſure, ſtrengthened their opinions, and confirmed their prejudices.

They

" inferiori, in viventibus adhuc hominibus, ſi quis inſpicere voluerit apparentia, quæ
" foramina habent meatus qui ſub caruncula encanthidos vel epicanthidos dicta uniuntur
" in quendam communem ſinum in narium cavitatem deſinentem per canalem proprium
" in oſſe ſquamoſo, quod internum angulum occupat inſculptum.

" Per hos meatus major lachrymarum pars ut ego in fletibus mulierum obſervavi, ad
" oculos emanat." FALLOPIUS.

Non enim os ſolummodo carioſum, verum etiam glandula ita eroſa erat, ut quotieſcunque puer ploraret, lachrymæ per ipſam fiſtulam copioſè extillarent. HILDANUS.

† Fiſtula lachrymalis fit ex humorum decurſu, qui currunt ad lachrymalis angulum juxta naſum, nec propter eorum multitudinem, et groſſitatem poſſunt exire, &c. hi autem morantes ibi diutius corrumpuntur, et locum ulcerant. LANFRANC.

Ægylops eſt tumor abceſſorius inter majorem angulum, et nares proveniens. PAULUS.

‡ At the great corner of the eye there is a glandule made for receiving and containing the moiſture which ſerves for lubricating the eye; this glandule ſometimes by a ſanguine or pituitous defluxion falling violently from the brain, ſwells and impoſtumates and ulcerates, &c. AMB. PAREY.

Hæc caruncula ab acrium humorum affluxu turget, nonnunquam intemuſcit, et abſcedit ulceraturque, ulcere non raro in fiſtulam abeunte, adeo ut ſubjectum os corrumpatur. MUNNICKS.

Per puſillum utriuſque palpebræ foramen lachrymæ naturaliter effluunt. FAB. AB AQUAPENDENTE.

Lachrymæ veniunt per lachrymalia a foramine quodam parvo, et quaſi inſenſibili in fine pilorum. GUIDO.

They who ſuppoſed it to be cauſed originally by a defluxion of the inflammatory kind, tending to produce an abſceſs, had recourſe at firſt to thoſe general methods and means which were thought moſt likely to prevent ſuch conſequence: theſe not anſwering, they proceeded to open the ſuppoſed abſceſs, and to endeavour the digeſtion of it: on the other hand, they who ſuppoſed it to be an encyſted tumor attempted the eradication of it either by knife, cauſtic, or cautery; and all of them taking it for granted, when the diſcharge was apparently purulent, or much diſcoloured, that the bone was rotten, adviſe the uſe of eſcharotic applications, or the hot iron, to deſtroy the calloſity, and to dry and exfoliate the caries; and theſe methods failing, as in the nature of things they very frequently muſt, they pronounced the diſeaſe to be incurable.

A more minute and careful examination into the anatomy of the parts has given us a more true idea of the diſorder, and furniſhed us with a more rational, as well as a more ſucceſsful method of treating it. We now know that the caruncule is not the organ which ſecretes the tears, but that this office is performed by a gland, ſituated near the outer corner of the eye; that the lachrymal fluid is in its nature perfectly innoxious; that an obſtruction in the naſal duct is moſt frequently the primary and original cauſe of the complaint; and that its ſeat is in the ſacculus lachrymalis.

Upon theſe principles the modern practitioners have, with great induſtry and ingenuity, endeavoured to find out ſome means, whereby this obſtruction may be removed, and the parts reſtored to their natural and healthy ſtate, without ſuch pain, deſtruction, and deformity, as the antient methods occaſioned; or, theſe failing, to eſtabliſh a new artificial paſſage, which may in ſome meaſure ſupply the place of the natural one.

All theſe means have the merit of being founded on the natural ſtructure of the parts concerned. When the more eaſy, and mild ones ſucceed, the patient gains a conſiderable advantage; and when they do not, little time is loſt, nor is any more efficacious method rendered thereby leſs practicable: in this, as in every other part of ſurgery, the more ſimple means ought to be firſt tried; pain ſhould be avoided as much as poſſible, except when abſolutely neceſſary, and then it muſt be ſubmitted to.

SECT. II.

THAT the motions of the eye-lids may be performed with the utmoſt eaſe, that the tunica cornea may be kept conſtantly clean, bright, and fit for the tranſmiſſion of the rays of light, and that duſt, and other hurtful particles, may be immediately waſhed away, the ſurface of the eye is continually moiſtened by a fine limpid fluid.

This fluid is derived principally from a large gland, ſituated under the upper edge of the orbit, near the outward corner of the eye, which gland is of the conglomerate kind, and lies in a ſmall depreſſion of the os frontis; its excretory ducts, or thoſe by which it diſcharges the ſecreted fluid, piercing the tunica conjunctiva, juſt above the cartilaginous borders of the upper eye-lids.

While the caruncle was thought to be the ſecretory organ of the tears, this gland bore the title of glandula innominata; but now that its uſe and office are known, it is called glandula lachrymalis.

By irritation from any ſharp or poignant particles, a large quantity of this fluid is immediately ſecreted, and by the motion of the eye-lids is as immediately derived over the ſurface of the eye, by which means ſuch particles are waſhed and wiped off. Sometimes alſo the

paſſions

paſſions of the mind produce an immediate increaſe of this lymph, which is then ſtrictly and properly called tears; a conſtant ſecretion of too large a quantity cauſes a diſeaſe, called epiphora; and a deficiency of it makes the motions of the lid difficult and painful.

Although the fluid ſecreted by the lachrymal gland is conſiderable in quantity, yet, when it is not ſuddenly produced by irritation from without, or paſſion within, it is ſo conſtantly and gradually carried off, as to create neither trouble, uneaſineſs, nor blemiſh.

The edge, or border of each eye-lid, is formed by a thin cartilage, the figure and conſiſtence of which keep the lids properly expanded; theſe cartilages are covered by a fine membrane, and are called cilia; their internal edges do, upon every motion, ſweep over every point of the ſurface of the cornea; this motion, though almoſt imperceptible, unleſs attended to, is very frequently performed, and as the ſecretion of the fluid is alſo conſtant, the eye is by this means kept always moiſt, clean, and bright.

At the extremity of each of theſe cartilaginous borders of the eye-lids, on the ſide next the noſe, is a ſmall papilla, or eminence; and in the middle of each of theſe is a ſmall hole, or perforation, which being made in the cartilage is not liable to collapſe while the parts are in a ſound ſtate, but remains always open; they are called the puncta lachrymalia, and their office is to receive the lachrymal fluid, as it runs off the cornea along the edges of the eye-lids, thereby preventing it from trickling down the cheek; and that there may be no impediment to the conſtant execution of this office, during the time of ſleep, as well as that of being awake, the internal edges of the cilia do not come into immediate contact with each other in that point where theſe orifices are.

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From each of theſe puncta lachrymalia proceeds a ſmall membranous tube, which tubes ſoon enter into, or form a pouch or bag, ſituated near the inner angle of the eye, juſt below the union of the two lids, under the muſculus orbicularis palpebrarum; the bag is called the ſacculus lachrymalis, and its office is to receive all the lymph brought by the puncta and ducts: the upper part of this ſacculus lies in an excavation, formed partly by the naſal proceſs of the os maxillare ſuperius, and partly by the os unguis; the lower part of it is confined in a long channel, and forms a tube, or duct, which deſcending obliquely backward, communicates with the cavity of the noſe, behind the os ſpongioſum ſuperius, by an opening whoſe ſize is ſomewhat different in different ſubjects.

This paſſage is called the ductus ad nares, or the ductus naſalis, and through it whatever is received by the ſacculus from the puncta does, in a healthy and ſound ſtate of theſe parts, paſs into the noſe.

The membrane which lines this ſacculus and duct, is in its ſtructure much like to the membrana pituitaria narium, from the ſurface of which a clear viſcid mucus is ſecreted, and by which the ſacculus and paſſages are conſtantly moiſtened and kept pervious.

While the parts are in a healthy, ſound ſtate, the fluid ſecreted by the lachrymal gland paſſes off through the puncta, ſacculus, and duct into the noſe, without any trouble, but when they are in a diſeaſed ſtate the caſe is otherwiſe; this membrane, like all other vaſcular parts, is liable to inflammation, by which means it often happens, that it is ſo thickened as to obſtruct the naſal duct, and thereby much impede, or totally hinder the paſſage of any thing through it; in conſequence of which obſtruction the ſacculus is filled by its natural mucus, and the derivation of the ſerum from the lachrymal gland thro' it being thus prevented, it runs off from the eye-lid down the cheek: this obſtruction continuing, and the mucus ſtill lodging, the ſacculus

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is dilated, and produces that tumor in the inner corner of the eye, and that diſcharge, upon preſſure, which characterize the firſt ſtate of the diſeaſe in queſtion, and, in conjunction with ſeveral other attending ſymptoms, prove its ſeat to be in the lachrymal ſac, and naſal duct.

SECT. III.

ALTHO' the ſeat of this diſeaſe is the ſame in almoſt every ſubject, yet its appearance is very different in different perſons, and under different circumſtances. Theſe variations depend principally on---

1. The degree of obſtruction in the naſal duct.
2. The ſtate of the cellular membrane covering the ſac.
3. The ſtate of the ſacculus itſelf.
4. That of the bone underneath.
5. The general ſtate and habit of the patient.*

Sometimes a ſerous kind of defluxion, by which the lining of the ſac and duct are ſo thickened as to obſtruct, or prevent the paſſage of the fluid through them into the noſe, makes the whole complaint; and the cellular membrane on the outſide not being diſeaſed, there is no appearance of inflammation. In this caſe the duct is ſtopped, and the ſacculus dilated, but without any alteration in the colour of the ſkin; a fulneſs appears in the corner of the eye next to the noſe; and upon the application of a finger to this tumor, a clear viſcid mucus is diſcharged thro' the puncta lachrymalia: the patient feels no pain

* As the ſtate and circumſtances of this diſeaſe are really various, and differ very eſſentially from each other, the general cuſtom of calling them all by the one name of fiſtula lachrymalis is abſurd.

nor finds any inconvenience, except what is produced by the discharge of this mucus, and by the trickling of the lymph down the cheek.

In ſome caſes the mucus is not perfectly and always clear, but is ſometimes cloudy, and looks as if it had a mixture of milk or cream in it; at firſt waking ſome of it is generally found in the corner of the eye, and the eye-laſhes, being ſmeared over with it during ſleep, moſt commonly adhere together in the morning.

This is the moſt ſimple ſtate of the diſeaſe, what the French have called the hernia, or hydrops ſacculi lachrymalis; it is frequently met with in children who have been rickety, or are ſubject to glandular obſtructions; and in this ſtate it ſometimes remains for ſome years, ſubject to little alterations, as the health or habit ſhall happen to vary, the ſaccului being ſometimes more, ſometimes leſs full, and troubleſome; the mucus which is preſſed out is ſometimes more, ſometimes leſs cloudy, and now and then it is attended with a ſlight ophthalmy, or an inflammation of the eye-lids, but which, by common care, is eaſily removed.

If the ſacculus is not much dilated, the diſcharge ſmall, and produced only by preſſure, the chief inconveniences are the weeping eye, and the gumming together of the lids, after ſleeping: but theſe, by being attended to, may be kept from being very troubleſome, and if the diſeaſe makes no farther progreſs, may be ſo regulated as to render any more painful proceſs totally unneceſſary.

If the dilation is conſiderable, the ſwelling is more viſible, and the quantity of mucus is larger; it is alſo in this ſtate more frequently mixt and cloudy, and more troubleſome, from the more frequent neceſſity of emptying the bag; but if the patient be adult, it may, even in this more dilated ſtate of it, be kept from being very inconvenient.

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If an inflammation comes on, the tumor is thereby conſiderably increaſed, the diſcharge is larger, as well during ſleep as upon preſſure; the ſkin covering it loſes its natural whiteneſs and ſoftneſs, becomes hard, and acquires an inflamed redneſs; and with the mucus a mixture of ſomething, which in colour reſembles matter, is diſcharged, eſpecially if the preſſure be made with any force, or continued for any time: this circumſtance, added to the painful ſenſation, and inflamed appearance of the parts, has been productive of a ſuppoſition, that in this ſtate there is either an ulcer, or an abſceſs within the facculus or duct.

As this is an opinion which, tho' it may poſſibly ſometimes have ſome foundation in truth, yet is in general entertained much too haſtily, and is alſo the principal ſource whence moſt of the miſtakes concerning this diſeaſe have ſprung, I would beg leave to be indulged a a few words on this ſubject.

It has already been obſerved, that from the ſurface of the membrane which lines theſe parts a thin mucus is ſecreted, by which its ſurface is ſmeared over, in the ſame manner as is that of all the membrane which covers or lines the fauces, larynx, and internal parts of the noſe, the antra of the jaws, and the ſinuſes of the ſphenoid and ethmoid bones, &c. While the lachrymal ſac is free from diſeaſe, and the ductus ad nares open, this mucus is nearly limpid in colour, ſmall in quantiity, and paſſes inſenſibly into the noſe with the fluid from the lachrymal gland; but when, by the obſtruction of the naſal duct, that paſſage is denied, it neceſſarily lodges in the facculus; by diſtending and irritating its containing bag it is increaſed in quantity, altered in colour, and diſcharged at the puncta lachrymalia, as it either becomes too much for the ſac to contain, or as it is forced out by preſſure. This is a ſhort and ſuccinct account of the true nature of the diſeaſe, and ſuch as will fairly and truly account for all its ſymptoms

and appearances, without any recourſe to either abſceſs or ulcer, circumſtances which very ſeldom, if ever, attend it.

That which is mixed with the clearer part of the mucus, and which from its pale yellow hue is taken for matter, is not matter, but mucus, which in this part, as well as ſeveral others in the body, does, either by being confined beyond the neceſſary time, or by inflammation, or irritation of the gland or membrane which ſecretes, or contains it, or even from general affection of the habit, put on a yellow, purulent colour, where there is neither abſceſs nor ulcer in the part whence it comes.

So many inſtances of this are producible as to put the matter beyond all doubt; the urethra, vagina, and all the ſinuſes of the head which communicate with the noſe, furniſh us with them daily; the linings of all theſe are conſtantly imbued with a mucus naturally clear, and no more in quantity, than is neceſſary to keep the membranes moiſt; but either inflammation or irritation does immediately ſo add to its quantity, and ſo alter its colour, that in the two former the ſame miſtake has often been made as in the ſubject in queſtion; that is, the diſcharge has been thought to be purulent, and produced by ulceration of the parts.

Theſe two fluids pus and mucus, which have been ſo frequently confounded together, do really differ ſo widely from each other in their nature, conſtitution, ſources, purpoſes, and effects, that to diſtinguiſh them properly, and to point out the true character of each, ſeems to be a matter of much importance: it would carry me too wide from my preſent purpoſe to attempt it in this place, and therefore I ſhall only juſt mention what may ſerve merely to illuſtrate that.

If I conceive rightly of this affair, mucus, conſidered in a general ſenſe, is the effect of a natural ſecretion made by glands, membranes, or other bodies appointed for that purpoſe, and is ſo far from being originally

originally the conſequence of diſeaſe, that, in a due quantity, it is abſolutely neceſſary for ſeveral very important purpoſes in the animal œconomy; which purpoſes, when this fluid is deficient, muſt be ill-executed, and ſome kind of diſeaſe or defect follow: whoever will reflect upon the uſes of it in the inteſtines, joints, ſheaths, or capſulæ, of the tendons, in the ſinuſes of the ſkull ſerving the purpoſes of ſpeech, in the cavity of the noſe, where the olfactory nerves do their duty, in the proſtate gland, larynx, trachea, urethra, and vagina, will be eaſily convinced of the truth of this aſſertion, both with regard to its natural uſes in a healthy ſtate and proper quantity, and the ſhare it frequently has in the production of diſeaſes, when it is either vitiated or redundant.

Pus, or matter, is certainly no natural ſecretion; ſuppuration, tho' it is an act of nature when ſome parts of the body have been forcibly divided from each other, is nevertheleſs to be regarded as the effect of violence and deſtruction, at leaſt of diviſion; for, without entering minutely into the origin or nature of it, I believe I may venture to affirm, that the diſſolution of ſome of the ſolid particles of broken capillary veſſels, and a mixture of ſome part of the juices which ſhould circulate thro' them, make a neceſſary part of its production; however conſtant its appearance may be in the progreſs toward healing a wound, or ſore, yet it never is produced, even in the ſmalleſt quantity, without ſome degree of eroſion, ſome breach in the natural ſtructure of the parts; and when ſuch breach is healed the diſcharge neceſſarily ceaſes.

On the contrary, mucus may by irritation, relaxation, or defluxion, on its ſecreting or containing parts or organs, be increaſed to a quantity far beyond what is neceſſary or uſeful, and produce thereby a diſeaſe in parts where there is not the leaſt degree of ſolution of continuity, as in the caſes of teneſmus, ſtone in the bladder, fluor albus,

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and ſimple gleets from the urethra; as alſo in that kind of defluxion on the noſe and fauces, producing a catarrh, and in the immediate effect of all ſternutatories.

Other differences between the nature and properties of the two fluids might be mentioned; but if theſe already cited are juſt, they will be ſufficient to evince the impropriety of confounding them together, either with regard to theory or practice.

Nor is this miſtake of diſcoloured mucus for matter confined to the lachrymal ſac only; the two circumſtances of pain, and yellow colour, having in almoſt all times produced the ſame miſconception in the virulent gonorrhea of both ſexes: this has been called pus, and being ſaid to proceed from ulcerations in the urethra and vagina, tho' the repeated teſtimony of thoſe who have, immediately after death, examined the parts of perſons ſo diſeaſed, has often been produced to the contrary, and tho' the diſcharge itſelf, when properly examined, will always prove the contrary: inflammation and irritation of the membranous linings of the urethra, and vagina, will fully account for all the appearances in this diſeaſe, in which there is neither matter, nor ulcer, nor abſceſs: whoever will attend to the diſcharge made from a purulent ulcer, will find it widely different from that which iſſues from either of the above parts in the gonorrhea.

Again, in caſe of ſtrictures in the male urethra, the diſcharge occaſioned by a bougie, properly and judiciouſly uſed, is a diſcoloured mucus, and not matter, though it is generally ſo called: it is from the diſcharge of this mucus, and the dilatation of the paſſage, that the relief is obtained, not from any deſtruction or diviſion of parts: the bougie, which produces true matter, does much more harm than good, and makes a ſore where there was none, and where there ought to be none. How often do catarrhous defluxions on the trachea, and larynx, wear toward the cloſe a deep purulent colour, ſo as to deceive

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the unknowing into an opinion, that it is matter upon the lungs? But no judge of theſe things ever had recourſe to abſceſſes or ulcers for a ſolution of ſuch appearance. The argument drawn from the quantity of theſe diſcharges is as erroneous as thoſe taken from its colour; as an inflammatory defluxion on the part does generally occaſion the latter, ſo mere irritation will produce the former, which does alſo generally ceaſe when the irritating cauſe is removed or appeaſed. How immediately is a moſt troubleſome teneſmus cured by a glyſter of ſtarch and opium? What large fœtid diſcharges are made from behind the prepuce of many perſons, not only free from all venereal taint, but without any ulceration of the parts, by a kind of exſudation? To what length of time will they not continue, if neglected, and how immediately do they ceaſe by the uſe of a ſpirituous or vitriolic waſh? How often is the fluor albus, even in ſome of its worſt circumſtances, moderated, not to ſay cured, merely by waſhing away the acrid mucus, which, lodging in the rugæ of the vagina, continually irritated the parts to a freſh diſcharge, and perpetuated the diſeaſe? What quantity of ſlime is there in the urine of thoſe who have a ſtone in the bladder? And how totally does it ceaſe, upon that ſtone being diſcharged, or taken away? Whereas neither cleanſing of parts, nor removal of irritating bodies, does, or ever can procure an immediate ceſſation of a diſcharge of true matter, which being occaſioned by a ſolution of continuity, an eroſion or diviſion of the parts whence it proceeds, muſt decreaſe gradually, and at laſt can only ceaſe by ſuch part becoming whole again.

In ſhort, the two fluids are ſo abſolutely different and diſtinct, that the blending them together in our ideas of diſeaſe, proceeding from, or producing either of them, cannot be too induſtriouſly avoided. It is a ſubject on which a great deal more might be ſaid, as it would comprehend, or have relation to many diſorders which perhaps are not

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ſufficiently underſtood, or attended to; but being beſide my preſent purpoſe, I ſhall ſay no more about it, only deſire, that I may not be miſunderſtood, as if I meant to aſſert, that there never is abſceſs or ulcer in the lachrimal ſac, and duct: No, I only mean to ſignify, that it is my opinion, that the yellow or purulent colour of the diſcharge, which is generally received as a proof of ſuch, is no proof at all; that this colour may be, and moſt frequently is, dependent on other cauſes; that tho' by the ſuppuration of the cellular membrane covering the ſac, the upper part of it ſometimes becomes ſloughy, and burſts, yet the lower part of it, and the naſal duct, are often at the ſame time perfectly ſound; and that there never is abſceſs or ulcer within, while the ſkin is entire and preſerves its natural hue, and ſoftneſs, let the colour of the diſcharge be ever ſo yellow; circumſtances of no ſmall conſequence in the treatment of this diſeaſe.

The inflammation of the cellular membrane covering the ſac, is a circumſtance which makes a conſiderable difference, both in the appearance of the diſeaſe, and in its requiſite treatment; in ſome caſes it is confined merely to the ſurface of the tumor in the corner of the eye; in others it ſpreads ſtill farther, affecting the eye-lids, cheek, and ſide of the noſe.

When the parts are in this ſtate, the mucus within the bag has generally the appearance of being matter, that is, it wears a deep yellow colour, and is of a more thin conſiſtence; if the puncta lachrymalia are naturally large and open, and the inflammation confined to the ſurface of the ſac, its contents will paſs off pretty freely, and the ſkin will remain intire; this is what the antients called the ſimple, or imperfect, or anchylops.

But when the ſkin covering the lachrymal bag has been for ſome time inflamed, or ſubject to frequently returning inflammations, it moſt commonly happens, that the puncta lachrymalia are affected by it, and

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the fluid not having an opportunity of paſſing off thro' them, diſtends the inflamed ſkin, ſo that at laſt it becomes ſloughy, and burſts externally. This is that ſtate of the diſeaſe which is called perfect Aigylops, or Ægylops; the diſcharge which uſed to be made thro' the puncta lachrymalia, while the ſkin was intire, is now made thro' the new opening, and by excoriating the eye-lids and cheek increaſes the inflammation, and gives the diſeaſe a much more diſagreeable appearance. In ſome the matter burſts thro' a ſmall hole, and after it has diſcharged itſelf, the tumor ſubſides, the neighbouring parts become cool, and tho' the ſkin covering the ſurface of the ſacculus is ſloughy and foul, yet there is no reaſon to believe that the ſac itſelf is much diſeaſed below; in others the breach is large, the ſkin remains hard and inflamed, and from the appearance of the ſore, there is reaſon to ſuppoſe the whole inſide of the bag to be in a diſeaſed ſtate; and in ſome caſes, which have been much neglected or irritated by ill-treatment, the cavity of the ſacculus ſeems to be filled with a looſe ill-natured fungus, which gleets largely, and produces inflammation and excoriation of all the parts about.

There is alſo another circumſtance which ſometimes is found to attend this diſorder, viz. a carious ſtate of the bones. This was by our forefathers ſuppoſed to be a frequent one, and was the principal reaſon for their ſo free uſe of cauſtic, cautery, and ſcalpra, in the treatment of it; but ſince the diſeaſe has been more minutely examined into, this circumſtance has been found to be a very rare one. When the fiſtula lachrymalis is a ſymptom of the lues venerea, as it ſometimes is, the bones are indeed often carious; but then, the fiſtula is not the original complaint, but produced ſecondarily, and is a conſequence of the diſeaſed ſtate of the os ethmoides, and offa ſpongioſa of the noſe, and is not curable by any local means or applications, but depends intirely on the cure of the diſeaſe of which it is a ſymptom.

I have alſo ſeen an abſceſs after the ſmall-pox, which, by falling on the lachrymal bag, has made it all ſlough away, and leave the bones bare; which circumſtance I have alſo ſeen attend the free uſe of ſtrong eſcarotics applied to deſtroy what is called the cyſt; but without the acceſſion of ſome other diſorder producing it, or the moſt abſurd method of treating the complaint, I believe that a caries of the bones will very ſeldom be met with. Indeed the combination of other diſeaſes, either of the general habit, or affecting the ſame, or the neighbouring parts, does often make a very material difference, both in the appearance of the diſorder, in the prognoſtic, and in the proper method of treating it, which therefore ſhould always be enquired into: for inſtance, the patient is ſometimes ſubject to an habitual ophthalmy, or lippitudo, which will add to the deformity, and give a good deal of additional trouble during the cure; an ozæna, or ſome other diſeaſe of the membrane, and cells of the ethmoid bone, or a polypoſe excreſcence within the noſe, are now and then combined with it; the habit is ſometimes, as I have before obſerved, infected with the lues venerea, of which this diſeaſe may be a ſymptom; ſtrumous glandular obſtructions are its too frequent companions, and, what is worſt of all, it is ſometimes cancerous.

SECT. IV.

FROM what has been ſaid, I think it will appear that this diſeaſe, in its primary and moſt ſimple ſtate, conſiſts in a detention or lodgement of mucus in the ſacculus lachrymalis, in conſequence of an obſtruction of the natural paſſage from that bag into the noſe; that by means of this lodgement the ſacculus is diſtended, irritated, and ſometimes inflamed; that the fluid which paſſes from the lachrymal

gland over the eye to the puncta lachrymalia, being prevented by the fulneſs of the ſac from getting into it, runs down the cheek, and therefore that the characteriſtic marks of the diſorder, when recent, are a ſmall tumor in the inner corner of the eye, an involuntary flux of ſerum down that ſide of the face, and a diſcharge of mucus thro' the puncta lachrymalia upon preſſure.

This lodgment, being orginally produced by the ſtoppage of the natural duct, it follows, that the firſt curative intention is, the removal of that obſtruction; which is ſometimes practicable, but more often not; the degree of obſtruction, its date, the ſtate of the adjacent parts, and ſome other circumſtances, rendering it more or leſs ſo in different ſubjects.

That the inexperienced practitioner may be guarded againſt giving a haſty prognoſtic, or making attempts, which however fatiguing to the patient, muſt in the end prove fruitleſs; and that he may be enabled to underſtand the diſeaſe more perfectly, I ſhall take the liberty to divide it into four general heads, or ſtates, under which all its leſſer diſtinctions may be comprehended.

The firſt conſiſts in a ſimple dilatation of the ſacculus, and obſtruction of the naſal duct, diſcharging upon preſſure a mucus either quite clear, or a little cloudy; the ſkin covering the bag being intire and perfectly free from inflammation.

In the ſecond, the tumor is ſomewhat larger; the ſkin which covers it is in an inflamed ſtate, but intire; and the diſcharge made thro' the puncta lachrymalia, is of a pale yellow, or purulent colour.

In the third, the ſkin covering the ſacculus is become ſloughy and burſt, by which means the ſwelling is in ſome meaſure leſſened; but the mucus, which while the ſkin was entire, uſed to be preſſed out thro' the puncta lachrymalia, now diſcharges itſelf thro' the new

aperture; the ductus ad nares, both in this and the preceding ſtate, are not otherwiſe diſeaſed, than by the thickening of its lining.

In the fourth, the paſſage from the ſacculus lachrymalis into the noſe is totally obliterated, the inſide of the former being either ulcerated or filled up with a fungus, and attended ſometimes with a caries of the bone underneath.

Theſe will, I think, comprehend every ſtate and circumſtance of the diſeaſe, and, if attended to, will in general point out the proper method of treating it.

The ancients, who ſuppoſed this diſorder in its firſt ſtate to be an inflammatory defluxion from the brain on the caruncle tending to ſuppurate, directed their firſt attention to prevent ſuch conſequence; for which purpoſe they employed phlebotomy, cathartics, iſſues, ſetons, collyria, and refrigerant applications of all ſorts *; and theſe not ſucceeding, they had recourſe to ſuch as they thought would haſten the ſuppuration of the ſuppoſed abſceſs †.

By

* The old writers have many forms of collyria, epithems, &c. which they uſed upon this occaſion, but iſſues and ſetons they lay great ſtreſs on, which practice may immediately ſatisfy us what was their opinion of the nature of the diſeaſe.

" Omnium vero præſtantiſſimum eſt ſetaceum, materiam enim ad oculos fluentem po-
" tenter ad ſe trahit et evacuat, caput ad omnibus excrementitiis humoribus expurgat, et
" egregie corroborat, quid plura, tanti eſt momenti ut inveteratam fiſtulam lachrymalem
" ſine hoc præſidio vix curari poſſe."

† Mr. Serjeant Wiſeman moſt certainly did not underſtand this diſeaſe, and miſtook it either for a tumor of the encyſted kind, or for an inflammatory defluxion, and treated it as ſuch: his words are,

" Ægylops is a tumor of the inner canthus of the eye, either ſcrophulous, ætheroma-
" tous, or of the nature of a melicenis, or ſometimes with inflammation: the cauſes of
" Ægylops are the ſame that produce the like tumor in other places, but ſometimes it is
" made by fluxion, and appeareth firſt as a phlegmon: if it be ſtruma or ætheroma it is
" made by congeſtion."

" The

By the improper uſe of medicines of the latter kind, it frequently happened that the ſkin became inflamed and burſt; the diſcharge which neceſſarily followed this accident, together with the heated appearance of the parts about, confirmed their opinion of a collection of matter within, and according to ſuch ſuppoſition, they attempted to obtain a cure by dilating the orifice, and endeavouring to make an incarnation from the bottom of the hollow; not being acquainted with

" The indications of cure are taken from the Ægylops, whether it be in its beginning " with inflammation, or by congeſtion, paſſing its matter forth under the cilium into the " eye, in which caſe it is fiſtulated. Anchyclops has alſo its peculiar way of treating as " other tumors of the glands."

Without any deſign to criticiſe on the ſtrange unintelligibility of the Serjeant's language, I believe, I may venture to ſay, that no man who is not previouſly acquainted with the nature of the diſeaſe, will learn from hence that its ſeat is in the lachrymal ſac, and that an obſtruction in the naſal duct is the firſt cauſe of it.

To come ſtill nearer, or even into, our own time, Dr. Daniel Turner compiled a treatiſe of ſurgery, which was univerſally diſperſed, and read all over the kingdom, and was at that time generally looked upon as a true repreſentation of the London practice: the Doctor ſays, " Anchylops or Ægylops, are diſeaſes of the internal canthus of the eye, " in which the lachrymal gland is concerned, and from whence the fiſtula of the ſame " part is denominated: the prognoſtic may be gathered from the method of cure, in " which, univerſals premiſed, ſuch as bleedings, purgings, &c. you may attempt to " diſſolve the humour by ſome gentle anodyne, or diſcutient cataplaſm, but if it inflame " and ſuppurate, you muſt haſten maturation, as well as the diſcharge, by reaſon of " the part it lies upon; but when notwithſtanding all your endeavours to incarn and ag- " glutinate, the matter continues to diſcharge itſelf, not only by the outward orifice, " but alſo under the cilium into the eye, you muſt try ſome more powerful deſiccative."

I believe no one will venture to ſay, that the nature and ſeat of the diſeaſe is more or better explained by what the Doctor has ſaid, than by the Serjeant; and I think it is perfectly clear, that neither of them had any true idea of it at all, they both miſtook the caruncle for the lachrymal gland, and the diſeaſe for an encyſted, or a ſcrophulous tumor, which ought to be brought to ſuppuration; the lachrymal ſac, the ductus ad nares, their uſe, and the diſorder of them creating the complaint in queſtion, they were totally unacquainted with.

with the ſituation, or uſe of the naſal duct, they took no care to free it from the obſtruction under which it laboured, but dreſſing the ſore like a common impoſthumation, permitted it either to be filled up with a looſe fungus, or to contract itſelf to a narrow fiſtulous orifice, which daily diſcharging a diſcoloured kind of fluid, and not healing by ſuch means as they made uſe of, they concluded the bone underneath was carious, and made way down to it, either by removing the parts with a cutting inſtrument, or by deſtroying them with cauſtic and cautery, intending to procure an exfoliation, and thereby a firmer baſis to heal on.*

But ſince the uſe of the ductus naſalis has been known, ſince it has been diſcovered that an obſtruction in this is the primary and principal cauſe of the diſorder, and that what paſſed for the cavity of an abſceſs is really the ſaccylus lachrymalis, both the intention of cure, and the means, have been conſiderably altered.

In the firſt and moſt ſimple ſtate of the diſeaſe, viz. that of mere obſtruction, without inflammation, much pains have been taken to reſtore the parts to their natural ſtate and uſe, without making any wound or diviſion at all; the introduction of a probe, the injection of a fluid, and a conſtant compreſſion made on the outſide of the ſacculus in the corner of the eye, are the principal means by which this has been attempted.

Some

* Humulo ſummum ejus foraminis excipiendum, et totum id cavum ſicut in fiſtulis dixi, uſque ad os excidendum. CELSUS.

Corpus id quod inter angulum uſque ad abſceſſum eſt excoluimus, et carnes e profundo eductimus; quod ſi igitur per ſumma ruptus fuerit abſceſſus, totum id quod eminet uſque ad os excidendum. PAULUS.

Si vero per hæc medicamenta non curetur, aut recediraret poſtea, ſignum eſt quod os eſt corruptum de ſubtus, quare tunc oportet locum detegi et os corruptum removeri.

LANFRANC.

Some few years ago M. Anel made a probe of ſo ſmall a ſize as to be capable of paſſing from the eye-lid into the noſe, being introduced at one of the puncta lachrymalia, and paſſing through the ſacculus and duct; with which probe he propoſed to break thro' any ſmall obſtruction, which might be found in its paſſage.

He alſo invented a ſrynge whoſe pipe is ſmall enough to enter one of the puncta, and by that means to furniſh an opportunity of injecting a liquor into the ſacculus, and duct; and with theſe two inſtruments he pretended to be able to cure the diſeaſe whenever it conſiſted in obſtruction merely, and the diſcharge was not much diſcoloured. The firſt of theſe, viz. the paſſage of a ſmall probe thro' the puncta, has a plauſible appearance, but will, upon trial, be found very unequal to the taſk aſſigned; the very ſmall ſize of it, its neceſſary flexibility, and the very little reſiſtance it is capable of making, are manifeſt deficiencies in the inſtrument; the quick ſenſation in the lining of the ſac, and duct, and its diſeaſed ſtate, are great objections on the ſide of the parts, ſuppoſing that it was capable of anſwering any valuable end, which it moſt certainly is not.

That the paſſing a fine probe from one of the puncta lachrymalia into the noſe is very practicable, I know from experience; but I alſo know from the ſame experience, that the pain it gives, and the inflammation it often excites, are much greater than any benefit which does or can ariſe from it.

It is ſaid that the principal uſe of this probe is to clear the little ducts leading from the puncta into the ſacculus, and the obſtruction of thoſe ducts is often mentioned as a part of this diſeaſe; by which one would be led to ſuppoſe that it was a circumſtance which frequently occurred, whereas it is ſeldom if ever met with, and when it does happen, can never produce the diſeaſe in queſtion, the principal characteriſtic of which is, a diſcharge into the inner corner of the eye

upon

upon preſſure made in the angle; this diſcharge is made from the ſacculus, thro' the puncta, and proves that the latter are open; the paſſing a probe therefore thro' theſe ſeems to be perfectly unneceſſary, ſince a ſtoppage of them would never give riſe to that diſeaſe, which conſiſts in an obſtruction to the paſſage of any thing from the ſac into the noſe, and not from the eye into the ſac.

The ſyringe, if uſed judiciouſly while the diſeaſe is recent, the ſac very little dilated, and the mucus perfectly clear, will ſometimes be found ſerviceable; I have uſed it where, I think, it has been much ſo; I have by means of it injected a fluid through the ſacculus into the noſe, and in two or three inſtances have effected cures by it, but I have alſo often uſed it ineffectually; it gives no pain, and a few trials render the uſe of it very little troubleſome.

Fabricius ab Aquapendente invented an inſtrument, which was ſo contrived, as by means of a ſcrew to make a preſſure externally on the lachrymal bag, from the uſe of which, he ſays his patients received much benefit; this inſtrument has been conſiderably improved by late practitioners, and is ſtill recommended as very uſeful.

All the good that can be obtained by compreſs and bandage, this ſcrew is capable of procuring; but it is alſo ſubject to all the ſame inconveniencies, ariſing from the impoſſibility of determining exactly the due degree of preſſure, for if it be ſo great as to bring the ſides of the upper part of the ſac into contact, all communication between it and the puncta will be thereby ſtopt; if it be but ſlight, the accumulation will not be prevented, nor does it in either caſe contribute to the removal of the obſtruction in the naſal duct, the primary and original cauſe of the diſeaſe.

If the curative intention was to procure an union of the ſides of the ſacculus, as in the caſe of parts ſeparated from each other by the formation of matter or ſloughs, and the preſſure could be made uniformly

and

and conſtantly, poſſibly it might be ſo managed as to anſwer a valuable purpoſe; but as that is not the intention, the preſſure, whether made by an inſtrument, or by a common roller and compreſs, contributes little or nothing toward a cure, nor did I ever ſee one effected by it, although I have ſeveral times tried both.

That ſome ſlight obſtructions of the naſal duct have gone off while the compreſſion has been uſed, I do not deny, but am in great doubt concerning the ſhare which it had in removing them, having ſeen more than one inſtance of a cure being obtained by the uſe of a proper regimen and medicines, in ſlight and recent caſes, where nothing was uſed externally but a vitriolic collyrium; and having been always diſappointed in my attempts by mere bandage of any kind.

Beſides theſe means of attempting a cure without inciſion, the gentlemen of the French Academy have favoured us with ſome others, ſuch as, the introduction of a probe into the lower part of the naſal duct within the noſe, the injection of a fluid by the ſame orifice, the paſſing a ſeton from the punctum lachrymale ſuperius thro' the ſaccu-lus and duct and out at the noſtril, there to remain till the cure is compleated; and for thoſe purpoſes they have invented and given figures of a number of probes, ſyringes, and many other inſtruments, which, they ſay, have been very ſucceſsfully uſed; far be it from me to ſay that they have not, or to prevent any body from trying thoſe, or any other means by which mankind may be cured of diſeaſes with the leaſt poſſible fatigue and pain; but from the experiments which I have made of moſt of theſe proceſſes, I muſt beg leave to ſuſpend my aſſent to their general utility, or even to their frequent practicability.

Repeated trials upon dead ſubjects will undoubtedly enable a man to paſs the probe, or perhaps now and then the ſeton, but he will alſo find it often abſolutely impracticable; and in the few inſtances in which he may chance to ſucceed as to this attempt, what will in ge-

neral be the conſequence? not what the writers on theſe ſubjects have taught him to believe, a cure, but a ſenſe of pain, and degree of inflammation, which the patient, before ſuch attempts were made, was free from, an exaſperation of the diſeaſe, and a loſs of much time, as I have more than once experienced. To which conſideration may be added, that infants and young children are very often afflicted with this diſorder, and that ſuch proceſſes as theſe are abſolutely impracticable upon them.

I ſhould be very ſorry to be miſunderſtood in what I now ſay, to have it ſuſpected, that I mean to derogate from the character of thoſe gentlemen who have been the inventors of theſe operations, or that I ſpeak ſlightingly of them, either becauſe they are not my own, or becauſe I have not been able to ſucceed in the uſe of them: it would give me great concern if I thought it would be believed that I acted upon ſo mean, ſo narrow a principle; no man is or would be more pleaſed with any real improvement in our art than myſelf, but having taken all the pains in my power to apply the diſcoveries of which I am now ſpeaking to practice (the only teſt of good ſurgery) and having found them moſt frequently impracticable, always ineffectual, I think myſelf obliged to ſay ſo.

Anel's ſyringe I have uſed ſucceſsfully, and think it may now and then be very well worth trying, in recent caſes more eſpecially, as it may always be uſed without giving any pain, or running the riſque of raiſing an inflammation; but I muſt alſo beg leave to obſerve, that if the bag is not much dilated, the mucus clear, the ſkin and cellular membrane uninflamed, and the parts about ſoft and eaſy, if the patient will take care not to ſuffer too great an accumulation, will, by the frequent uſe of a vitriolic collyrium, keep the eye-lids clean and cool, and carefully avoid ſuch things as irritate the membrana narium, or occaſion a ſudden flux of lymph from the lachrymal gland, the diſ-

eaſe may for many years, nay often for life, be kept from being very troubleſome, or inconvenient, without any ſurgery at all.---

SECT. V.

WHEN the diſeaſe is got beyond the ſimple ſtate juſt deſcribed, that is, when the parts round about are much, or conſtantly inflamed, or the ſkin covering the tumor is burſt, there is ſomething more to be done, if a cure is intended.

In this ſtate an opening in the upper part of the ſacculus lachrymalis becomes in general abſolutely neceſſary; and as a wound made by a knife leaves a much leſs diſagreeable ſcar than that which neceſſarily follows the burſting of the ſkin, one being a mere ſimple diviſion, the other a loſs of ſubſtance; it will always be found beſt to anticipate the accident of burſting, by making the opening as ſoon as the integuments are in ſuch a ſtate as to threaten to it.

For the making this inciſion authors have been very particular in their direction with regard to its place, manner, and form; they have ordered it to be ſemilunar, having its concave part toward the eye, and that the point of union of the lids ſhould be exactly oppoſite to the center of the inciſion; this lunated figure was calculated to correſpond with the courſe of the fibres of the orbicular muſcle, upon a ſuppoſition that a tranſverſe ſection of them would produce an inverſion of the lower lid, an effect which never follows: all that the ſurgeon need obſerve is, to take care to keep the knife at a proper diſtance from the juncture of the palpebræ, to begin the inciſion a very little above a line drawn from that juncture toward the noſe, and to continue it downward; its form may full as well be ſtraight as any other, and the beſt inſtrument to make it with is a ſmall crooked biſtory.

If the ſacculus is already burſt, the place of opening is determined, and the orifice may be enlarged with a knife, or dilated.

The inciſion made, the ſacculus ſhould be moderately diſtended, either with dry lint, or a bit of prepared ſponge; by which means, an opportunity will be gained in two or three days of knowing the ſtate of the inſide of the ſac, and of the ductus naſalis; if the former is neither ſloughy nor otherwiſe diſeaſed, and the obſtruction in the latter but ſlight, it ſometimes happens that after a free diſcharge has been made for ſome days, and the inflammation occaſioned by the firſt operation is gone off, the ſac contracts itſelf, a ſuperficial dreſſing, with moderate preſſure, heals the ſore, the lachrymal fluid reſumes its wonted courſe, and the diſeaſe diſappears.

Of this I have ſeen more than one inſtance, and perhaps it would happen oftener, if the very abſurd manner in which this diſorder is generally treated after opening the bag, did not prevent it: in this ſtate ſucceſs is to be expected from the moſt gentle treatment only; whatever irritates, inflames, or deſtroys, will infallibly prevent it.

If this ſimple method does not ſucceed, or from the ſtate of the parts ſeems unlikely to do ſo, another muſt be tried, which the opening already made will enable us to put in practice: the point to be aimed at is, if poſſible, to render the naſal duct pervious to the lachrymal fluid; and we muſt endeavour to obtain this end by ſuch means as give the leaſt pain, excite the leaſt inflammation, and leave the parts as near as poſſible in their natural ſtate, that is, we are to endeavour to dilate the paſſage from the ſac to the noſe, by ſome means which will gradually diſtend it without deſtroying its texture, in the ſame manner as the dilatation of the urethra ought to be effected in the caſe of ſtrictures, by paſſing either a probe, or a piece of cat-gut, or a bougie,

gie, gently into it, as far as it will eaſily go, and repeating it occaſionally, until it is got quite through, and the paſſage is free.*

Every man will determine for himſelf, by what means he will endeavour to accompliſh this end, nor is it of very material conſequence which he prefers, provided it be done gradually, and without giving pain; a proper dilatation of the upper part of the ſacculus by dry lint, or a bit of prepared ſponge, will be found uſeful previous to the attempt toward paſſing any thing into, or through the duct; and it will alſo be neceſſary that the ſurgeon be poſſeſſed of a juſt idea of the ſize and direction of it, both in a natural, and a diſeaſed ſtate; for whoever has formed one only from viewing its bony channel in a dry ſkull, will upon experiment find himſelf much deceived with regard to its diameter in a living ſubject; the membrane which lines it is not extremely thin, in a healthy ſtate, and when it is inflamed or thickened by obſtruction, the paſſage through the duct is thereby rendered very ſmall, if it is not quite ſhut up.

They of our anceſtors who miſtook this diſeaſe for an abſceſs, and found (as indeed they always muſt) extreme difficulty in filling it up with ſound fleſh, generally had recourſe to eſcarotic medicines for the deſtruction of that fungus which ſeemed to hinder them from accompliſhing their end. By which conduct they irritated all the neighbouring parts, increaſed the inflammation, and were moſt frequently fruſtrated in their expectation of a cure at laſt. The ſame kind of medicines were alſo uſed by thoſe who ſuppoſed the diſorder to be an encyſted tumor, with intention to eradicate the cyſt, which, they thought

* This caution is very neceſſary to be obſerved in the cure of ſtrictures of the urethra, in which caſe the proper intention is gradually to dilate the paſſage, and to procure an increaſed diſcharge of mucus from the lacunæ; this ſhould always be done gently, and by means which give as little pain as poſſible; whatever irritates or gives pain will certainly do miſchief, will add to the obſtruction, and increaſe the dyſury.

thought, prevented a cure by remaining behind; and both theſe methods of practice were vindicable, ſuppoſing their idea of the diſeaſe had been a true one, which it moſt undoubtedly was not: their reaſoning was right, but their principles were wrong; they were in general very little acquainted with the ſtructure and uſe of the parts, and totally miſtook the nature of the diſeaſe.

But now, that we are thoroughly acquainted with both, this kind of practice ought ſurely to ceaſe, as the preſervation of the ſacculus and duct, and not their deſtruction, are, or ought to be, intended: all cathæretic medicines muſt be wrong and prejudicial, at leaſt while the intention is ſuch; an intention at all times rational, and ſometimes capable of being fulfilled.

Notwithſtanding the deſtruction of the bag is allowed to be wrong by moſt ſurgeons of the preſent time, yet there are many, who, by their manner of dreſſing it, after they have opened it, do really, tho' not intentionally, produce the ſame effect as our forefathers aimed at: it is ſtill a cuſtom with many, as ſoon as it is opened, to diſtend the cavity of it with a hard tent, or with doſſils of lint charged with eſcarotic medicines, ſuch as mercurius precipitatus ruber, &c. by which means the inflammation is increaſed, the ſkin and edges of the inciſion hardened, and the inſide of the ſacculus put under the neceſſity of caſting off a ſlough. This is one of ſeveral inſtances ſtill remaining of our adhering to old methods of practice, after the principles on which ſuch methods were originally formed have been allowed even by ourſelves to be erroneous; for this manner of dreſſing the ſore is effectively the ſame as the antients made uſe of, while they ſuppoſed the diſeaſe to be an abſceſs of the caruncule, and encyſted tumor, or a callous ulcer with carious bone; and was by them intended very properly for the deſtruction of ſuch calloſity, to aſſiſt the exfoliation of the ſuppoſed caries, and to procure a firm baſis to incarn upon.

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On the contrary, the point which ought firſt to be aimed at, immediately after having made an opening into the ſac, is to endeavour to remove the obſtruction of the natural paſſage from thence into the noſe, by the means already mentioned, which deſign this method of cramming in eſcarotic dreſſings muſt neceſſarily fruſtrate, muſt frequently render a ſimple caſe complex, and at leaſt retard that cure it is deſigned to expedite.

The only excuſe that can be now made for ſuch method of dreſſing is, that the ſurgeon is ſatisfied that the ductus ad nares cannot be reſtored to its uſe, and therefore by deſtroying part of the ſacculus, intends to procure ſuch a generation of new fleſh, as may fill up its cavity, and hinder the accumulation or lodgment there in future.

If this was feaſible, perhaps it might be a vindication of ſuch treatment, but unfortunately it neither is, nor can be ſo in general; and whoever will attentively examine the natural ſituation and ſtructure of the parts concerned, will immediately ſee why it cannot. All, or the greateſt part, of the diſeaſed and obſtructed duct, lying in its bony channel out of the reach of what is applied to the inſide of the ſacculus, muſt prevent the generation of a firm baſis at its bottom, and produce a freſh collection of mucus, which in a ſhort ſpace of time lifts up the cicatrix, into a new tumor, and requires the ſame treatment as if nothing at all had been done.

On the other hand, it muſt not be denied, that now and then a cure has by this means been effected; but it has been ſo rarely, that it can hardly be admitted as an authority or vindication of ſo irrational an attempt.

The parts about the eye are moſt of them of very quick ſenſation, and eaſily irritated; all dreſſings are in fact extraneous bodies, and therefore when applied to ſuch parts cannot be too ſoft and light: ſuppuration is an act of nature, not of art; and is always beſt executed, when

when ſhe is leaſt diſturbed: this is a general truth, and will hold good in all parts of the body, even where ſuppuration may be moſt wanted; but in the preſent caſe, in which the lower part of the ſac, and all the duct, are often in ſuch ſtate as not to require any ſuppuration at all, eſcarotic dreſſings of any kind, by producing inflammation both of the eye and caruncule, by rendering the edges of the ſore hard, or ſloughy, and by deſtroying the communication between the puncta lachrymalia and ſacculus, muſt neceſſarily counteract the only proper intention of cure.

I would not in this place be thought to mean that a mere ſuperficial pledgit is all the dreſſing that is required; no; a moderate dilatation of the upper part of the ſacculus is at firſt abſolutely neceſſary, in order to get eaſily at the duct below; but this ſhould be effected without the uſe of corroſive applications of any kind, and is beſt accompliſhed by prepared ſponge, which will diſtend to almoſt any degree, without deſtroying.

When a paſſage has been once obtained, it ſhould be carefully kept open, either by a piece of cat-gut, a ſmall bougie, a leaden probe, or ſomething of that ſort; and when it is thoroughly eſtabliſhed, the ſore may be permitted to contract, until it becomes no more than what ſerves for the introduction of the bougie into the duct; in this ſtate I would adviſe, that it be kept open for ſome time, injecting now and then a little aqua calcis, ſoftened with mell. roſar. through from above into the noſe; and when it appears, that the paſſage is ſo free, and ſo well eſtabliſhed, that there is good probability of its preſerving itſelf, the orifice in the angle of the eye, by being covered only by a ſuperficial bit of plaſter, or pledgit, will contract and cloſe; and if during its cloſing, moderate preſſure be uſed on the ſacculus, to prevent a freſh accumulation of mucus, it will aſſiſt the cure.

Whether

Whether the ſacculus in a healthy and undilated ſtate, is endued with any degree of contractile power, which it loſes by being diſtended, or to what other cauſe it may be owing, I know not; but have more than once been foiled in my attempts towards this method of curing the diſeaſe, by a freſh collection of mucus, notwithſtanding the naſal duct has remained open, as appeared by the diſcharge made into the noſe, upon preſſure on the tumor, the immediate ſubſtance of the ſaid tumor, and the paſſage of an injection, or ſmall probe, after having again opened the ſac. Some of theſe have, upon being again healed, remained good cures, and others not; the uncertainty which attends theſe caſes is great, and the event never to be known but by experiment. Whoever ſays, that none of them are to be cured by the foregoing method, errs as much as he would, who ſhould expect it to ſucceed in all; where the diſeaſe is in ſuch ſtate, as to admit its being tried, it is very well worth while, as it is not painful, nor tedious; and where it does not anſwer our expectations, it is no hindrance to any other more efficacious one being made uſe of afterward: in all theſe caſes, different circumſtances in the patient, or in the ſtate of the diſeaſed parts, muſt produce a variation in the neceſſary treatment, both in general, and particular; a bad habit will require the uſe of internal remedies; the combination of other diſeaſes of the neighbouring parts will add to the difficulty and trouble; and even the faireſt, and ſuch as ſeem moſt likely to ſucceed, do ſometimes reſiſt this, and indeed every other attempt.

From the neceſſity of keeping the eye bound while dreſſings are applied for the dilatation of the ſacculus, an inflammation is frequently raiſed: this, added to the neceſſary diſcharge of ſerum, mucus, &c. is apt to heat and excoriate the parts about; therefore, warm fomentations, cooling collyria, epulotic cerates, and renewing the dreſſings as often as ſhall be neceſſary, with whatever elſe can contribute to-

wards keeping the ſkin clean and cool, muſt be found ſerviceable, as well as pleaſant, and ſhould never be neglected.

SECT. VI.

THE laſt ſtate which I mentioned of this diſorder, is that in which the natural paſſage from the ſacculus to the noſe is ſo diſeaſed as to be quite obliterated, or in which the bones are ſometimes found to be carious.

The methods hitherto deſcribed have all been calculated to preſerve the natural paſſage, and to derive the lachrymal fluid again through it; in this attempt they are ſometimes ſucceſsful, but when they are not, there is no chirurgical means left, but to attempt the formation of an artificial one in its ſtead.

The upper and hinder part of the ſacculus lachrymalis is firmly attached to the os unguis, a ſmall and very thin bone juſt within the orbit of the eye; which bone is ſo ſituated, that if it be by any means broken through, or removed, the two cavities of the noſe, and of the orbit, communicate with each other, conſequently the os unguis forms the partition between the hinder part of the lachrymal bag, and the upper part of the cavity of the noſe; and it is by making a breach in this partition that we attempt the formation of an artificial paſſage for the lachrymal fluid.

This operation, if conſidered merely as a perforation, is no invention of the moderns, the ancients undoubtedly performed it; but though it was executed much in the ſame manner as it is now, yet it was not done with the ſame intention.

From the accounts which our anceſtors have left us of the diſeaſe in queſtion, it is plain, that they ſuppoſed it to be always attended

with a degree of calloſity, and often with caries, and that the ſureſt way to obtain a cure was to lay the bone bare; this they effected either by cauſtic or cautery, according to the humour of the ſurgeon, or the fears of the patient: if cauſtic applications were uſed, they waited the ſeparation of the eſchar; and if they found, or believed the bone to be altered, they applied an actual cautery to it; if the bone to which the iron was applied was the os unguis, it was too thin to bear much heat, or much preſſure, conſequently was eaſily burnt, or or broke through, and by that means an opening was made into the noſe; a terebra was alſo ſometimes made uſe of inſtead of cautery, and the ſame effect produced thereby.*

By each of theſe methods, a paſſage being made from the ſaeculus lachrymalis into the noſe, a cure was ſometimes accidentally obtained; but the cautery was applied, either to deſtroy the ſuppoſed calloſity, or to deſquamate a caries; and the terebra, either for the ſame reaſon, or to make a paſſage for the diſcharge of matter, which lodged, and as they thought, hindered the healing of the ſore; for as they were not acquainted with the natural paſſage of the lachrymal fluid, it would be

* Oculo et cæteris junctis partibus bene obtectis os ferramento adurendum eſt vehementius, quod ſi jam carie vexatum eſt, quo crabror hinc ſquama abſcedat quidam adurenda imponunt. CELSUS.

Cum iſta pulvere in veritate fere mortificabam omnes fiſtulas curabiles, et cum cauterio ferreo, aut aheo, facta mortificatione tali totius cuthis uſque ad os, cum pulvere aut unguento ſuperdicto ſuperpone mortificato butyrum et eſchara aſpice, et ſi fuerit os corruptum cauteriza ipſum uſque ad ejus profundum. GUI. DE SALICETO.

Poſtea ſi homo fuerit dilicatus, per iſtud foramen mittatur Canellus ferreus vel æneus ſubtilis uſque ad profundum ſi poteris, et per ipſum canellum ferrum candens immitte et fiſtulæ radices decoque: at ſi timuerit iguem immittatur pillula de unguento ruptorio. ROLANDUS.

Oſſe detecto ferrum imprime calidum ſupra ipſum et ipſum cauterium mediocriter comprimendo poſtea imple totum vulnus cum oleo roſarum miſto cum vitello ovi.

LANFRANC.

abſurd to ſuppoſe, that by means of this perforation they intended the formation of an artificial one. Calloſity and caries were their two characteriſtics of the diſeaſe; the diſſolution of one, and the exfoliation of the other, were all they had in view from the uſe of either cauſtic or cautery, and the perforation of the os unguis was either accidental, or made merely for the diſcharge of matter.*

Indeed, if we attentively conſider what the old writers have left us on this ſubject, it will appear, that though they knew that a paſſage into the noſe was ſometimes a conſequence of their uſe of the terebra and cautery, yet the operators had no very accurate knowledge of the parts they made ſo free with; no preciſe idea of the bone on which their inſtruments were applied, or through which they paſſed; nor of the place moſt immediately proper for ſuch application of them; ſometimes

* Fabricius ab Aquapendente, who in general copies Paulus, ſpeaks of the perforation as means only to make a depending orifice for matter, "poſt caruncularæ et loci exciſionem terebra humorem aut pus in nares derivant." FAB. AB AQUAPENDENTE.

Gul. de Saliceto, and indeed many other of the ancient writers, ſpeak of uſing both cautery and terebra to the purpoſe of deriving the matter and ſanies which lodge in the ſac, into the noſe; and, by making a depending orifice, to procure a firm baſis to heal on.

"Aſpice os, et ſi fuerit corruptum cauteriza ipſum uſque ad ejus profundum, et concavitatem cum cauterio punctuali, et perfora ipſum ad aliam partem, ejus ut ſanies per naſum fluat, deinde incarnetur et conſolidetur." GUL. DE SALICETO.

Indeed the formation of an artificial paſſage for the lachrymal fluid could make no part of the intention of thoſe, who were not rightly acquainted with the natural one.

Paulus mentions perforation with the terebra as the practice of ſome in his time, but from what he ſays, it is plain he did not practiſe it himſelf, or think it neceſſary, and that he regarded it only as a method of making a depending orifice; his words are, "Quod ſi jam carie vexatum eſt ferro candenti, acuto, ac in cuſpidem abeunte adurimus ſpongiâ frigidâ madente oculo impoſita.

"Sunt qui poſt caruncularæ exciſionem terebra uſi humorem aut pus in nares derivarint; nos autem ſatis habuimus eouſque ſolum ferramentis ad Ægylopem accommodatis adurere ut ſquama abſcederet." PAULUS ÆGINETA.

See alſo FAB. AB AQUAPENDENTE.

ſometimes they perforated the os unguis very properly, ſometimes the cautery or terebra was thruſt into the bony channel of the natural naſal duct, and ſometimes they were applied to the naſal proceſs of the maxilla ſuperior: the direction given by moſt of them to raſp the bone (ſcalpris abradere) and to impreſs the cautery with ſome force, that the bone may be ſooner exfoliated, (ut citius ſquama abſcedat) plainly prove, that either they were not aware of the tender ſtructure of the os unguis, or that they did not intend to apply their inſtruments to it: if the former was the caſe, the perforation was accidental; if the latter, they muſt have often done much more harm than good; that is, they muſt have burned and deſtroyed unneceſſarily parts which have little or nothing to do with the diſeaſe; and by ſuch treatment of them muſt have much oftener prevented, than accompliſhed a cure.*

The intention of the preſent practitioners in making this perforation is different from that of our anceſtors; but it is more rational, and founded upon the nature and uſe of the parts concerned in the diſeaſe; it is to form and maintain a new artificial paſſage from the lachrymal bag into the noſe, when the natural one can no more be rendered uſeful, and without any view to any thing elſe: this, I ſay, is the aim of them all; but though they are perfectly agreed in their intention, yet they are not ſo with regard to the inſtrument which they uſe, ſome ſtill continuing the actual cautery, others uſing other different inſtruments.

The

* Petrus de Marchetti, though perfectly ſenſible that the os unguis was often broken through by the cautery, yet inſiſts upon it, that it ſerved no other purpoſe than to haſten exfoliation. "Præterquam quod hujus perforationis non alius ſit uſus quam ut os perfo-
"ratum aut inuſtum citius abſcedat. Obſervandum tamen non eſſe perforandum os niſi
"præſente maxima ipſius corruptione, ſola ſiquidem ejus ſuperficie corrupta aut alterata
"ſat fuerit partem læſam abradere." PETR. DE MARCHETTI.

And Mr. Verdue, a very modern writer, is alſo of the ſame opinion, "Le meilleur re-
"mede pour amorter l'acide qui cauſe la carie, c'eſt de paſſer legerement un cautere actuel
"ſur l'os ſans le percer."

The ancients preferred the cautery, for reaſons which have already been aſſigned; but ſince the ſymptoms of caſſonty and caries have been found to be very infrequent, and the os unguis has been perforated ſolely with a view to make an artificial paſſage into the noſe, the cautery has with many loſt much of its ancient credit, and other inſtruments have been ſubſtituted in its place, which give leſs pain at the time of uſing, and leave leſs deformity afterward.

But though many have laid aſide the hot iron, yet it ſtill has its advocates, who prefer it to every other inſtrument, and who have therefore endeavoured to obviate its inconveniencies: they have directed that the cannula through which it paſſes be made of a conical form, and ſo large at its lower end, as that they ſhall not touch each other; they have ordered this cannula to be wrapped round with wet rag, at the time of uſing it, they have placed a check upon the top of the iron to prevent its point from going too far, and have been particular in directing us to withdraw it as ſoon as it is got through.

But notwithſtanding theſe and every other caution, the cautery gives great pain at the time of uſing; it lengthens the attendance, and moſt commonly produces unneceſſary deformity even in the hands of the moſt dextrous; not to mention the horror occaſioned by thruſting a hot iron into the corner of the eye.

When the inconveniencies ariſing from the uſe of this inſtrument, even in the beſt hands, are important, it may be eaſily gueſſed what they muſt be in thoſe of the clumſy and ignorant; and therefore, unleſs ſome real advantage attends it, it ought certainly to be ſo diſcouraged, that no one may attempt to revive it. Let us then ſee with what intent it has been uſed by thoſe who have appeared moſt fond of it, and who may fairly be ſuppoſed to have beſt known how to manage it.

The defence made by the wet rag againſt the heat of the iron, the diſproportioned ſize, and the figure of the cannula, very plainly ſhew,

that

that its effect is designed to be executed by the point only; and the check at the upper end as clearly shews, that that point is designed to pass no farther than just through the bone, while all the ill effects are occasioned by the upper part of the cautery on the eye-lids and angle of the eye. Now, if it is not designed to produce any effect on any of the parts through which it passes down to the bone, but merely to burn through that and the membrana narium, and thereby make an opening into the nose, I do not see how it differs from any other perforator of equal size, except in the mischief it does to the parts above, to which it should do nothing.

It does indeed burn the bone and membrane, through which it pierces, and thereby prevents the orifice from closing again immediately; and this is certainly the principal end of perforation, by whatever instrument it is performed: but it is also as certain, that the same end is obtainable by means less mischievous and less horrible.

Our ancestors had a very plausible reason for using it: their ideas of callosity and caries always accompanied this disease, and authorised them to make use of such applications as they thought most proper in such cases: but now, when we know that these are symptoms which very rarely occur, or even if they do, that they are removable in a much easier manner, we are no longer vindicated in continuing an alarming and a painful process, when we can obtain the same end by much gentler means; for whether the membrana narium be burnt through, or divided in any other manner, it is the future method of dressing that opening that must maintain it, let it be made by whatever instrument, or in whatever manner it may.

The late Mr. Chesselden was a warm patron of the cautery, took a great deal of pains to prevent it from doing mischief, and has said in its defence, that---" other methods of curing this disease have been " much recommended, though often unsuccessful; but this, well per-

" formed,

"formed, is infallible." After ſo poſitive an aſſertion, I am ſorry to be obliged to ſay, that it is contradicted by manifold experience; that there have been many inſtances of perfect cures performed without the uſe of a cautery; and that ſome of thoſe who have been cauteriſed by Mr. Cheſelden himſelf have been diſappointed in the expectation of one: nor could he, with all the pains he took, prevent the effect of the heat of the iron, or leave his patient without a weeping eye.

The intention is merely to make an opening through the os unguis and membrana narium into the cavity of the noſe, and to treat that perforation in ſuch a manner as that it ſhall moſt probably remain open, and give paſſage to the lachrymal fluid from the puncta, after the external ſore is healed.

The extreme thinneſs of the bone renders the paſſage of the inſtrument very eaſy, and if the breach which is made be of any tolerable ſize, I am inclined to think that it never is filled up again by bone, but that when it is cloſed, it is by the membrane; and therefore it is the ſurgeon's buſineſs to make a pretty large opening in the bone, and to prevent its being cloſed again, by rendering the edges of the membrane on each ſide of it callous.

To make this opening, many different inſtruments have been deviſed, and uſed, a large ſtrong probe, an inſtrument like a common gimblet, a curved trocar, &c. &c. each of which, if dextrouſly and properly applied, will do the buſineſs very well; the one neceſſary caution is, ſo to apply whatever inſtrument is uſed, that it may pierce through that part of the bone which lies immediately behind the ſaculus lachrymalis, and not to puſh up too far into the noſe, for fear of injuring the os ſpongioſum behind, while it breaks its way.

For my own part, I have always uſed the curved trocar, which has ſerved my purpoſe well, and from which I have never experienced any inconvenience; in uſing it the point ſhould be turned obliquely downward,

ward, from the angle of the eye toward the inſide of the noſe; the accompliſhment of the breach will be known by the diſcharge of blood from the noſtril, and of air from the wound upon blowing the noſe. The moſt preciſe direction in this part of the operation will be of but little uſe to him who has no idea of the natural ſtructure and diſpoſition of the parts concerned, and who ought therefore to get ſuch information as ſoon as he can: but whoever is at all acquainted with this matter, or will attend to the ſituation and connection of the os unguis, knows that this bone is divided into two parts by a perpendicular ridge; that the lachrymal ſac is connected to all that part which is anterior to this ridge; and that the poſterior part of the bone contributes to form the orbit of the eye, and has little or no connection with the lachrymal ſac: the trocar muſt be applied therefore to that part of the bone which is anterior to the ridge, and conſequently behind the lachrymal bag; by the paſſage of the inſtrument, all this part of the bone will in all probability be broken, but from which no miſchief will enſue.

An attention to the natural ſituation of theſe parts will alſo ſhow the practitioner, that if the point of his inſtrument be paſſed in a tranſverſe direction with regard to the noſe, the os ſpongioſum ſuperius will be unneceſſarily wounded or broken; and if it goes in too perpendicular a direction, it may get into the channel of the natural duct, and its point will be ſtopped by bearing againſt that part of the maxilla ſuperior which contributes to the formation of that channel.

It has been objected to the trocar, that it may break the os unguis to ſome diſtance from the place where its immediate point is fixed: to which I can only anſwer, that I have performed the operation a great number of times, and never yet have ſeen any inconvenience to ariſe from it: indeed a total removal of a ſmall piece of the bone would be a thing rather to be wiſhed for than avoided; if we may reaſon by

analogy, it ſeems to be a neceſſary requiſite toward preſerving a future paſſage; for we very well know, in a caries of the bones forming the roof of the mouth, that they are ſometimes bare for a large compaſs, and by caſting off leave a conſiderable aperture into the noſe; yet, in many caſes, when the virus is removed, and the habit recruited, that opening will ſo contract as not to ſuffer a ſmall quill to paſs where you might have introduced your finger, nay often will quite cloſe; and therefore though the opening made in the os unguis may poſſibly in ſpite of all endeavours be again cloſed up, yet a free breach in it ſeems to be the moſt likely means to prevent it; and upon this principle I have always turned the perforator round very freely whenever I have uſed it; have never ſeen any miſchief from it, and do attribute the ſucceſs I have had with it, in ſome meaſure to this method of uſing it.

As ſoon as the perforation is made, a tent of lint ſhould be introduced, of ſuch ſize as to fill the aperture, and ſo long as to paſs thro' it into the cavity of the noſe: this ſhould be permitted to remain in two, three, or four days, till the ſuppuration of the parts renders its extraction eaſy; and after that a freſh one ſhould be paſſed every day, until the clean granulating appearance of the ſore makes it probable that the edges of the divided membrane are in the ſame ſtate. The buſineſs now is to prevent the incarnation from cloſing the orifice, for which purpoſe the end of the tent may be moiſtened with ſpir. vitriol. ten.; or a piece of lunar cauſtic ſo included in a quill, as to leave little more than the extremity naked, may at each dreſſing, or every other, or every third day be introduced, by which the granulation will be repreſſed, and the opening maintained: and when this has been done for ſome little time, a piece of bougie of proper ſize, or a leaden cannula may be introduced inſtead of the tent, and leaving off all other dreſſing, the ſore may be ſuffered to contract as much as the bougie will

will permit, which ſhould be of ſuch length, that one extremity of it may lie level with the ſkin in the corner of the eye, and the other be within the noſe.

The longer time the patient can be prevailed upon to wear the bougie, the more likely will be the continuance of the opening; and when it is withdrawn, the external orifice ſhould be covered only by a ſuperficial pledget, or plaſter, and ſuffered to heal under moderate preſſure.

There is another method which has been much recommended by ſome French writers to prevent the cloſing of the opening in the os unguis: which is, to introduce a cannula either of gold, or ſilver, or lead into the aperture, and to permit the ſore to heal over it, ſuffering the cannula to remain, or to come away by the noſe.

For my own part I cannot ſay any thing to it, having never had occaſion to try it; the caſes of this kind which I have had under my direction, having generally ſucceeded under ſome of the methods already mentioned; which methods will frequently prove ſucceſsful, if the ſurgeon is clear in his intention, purſues it ſteadily, and properly, and refrains from doing too much: though I muſt again repeat what I have ſaid before, viz. that there is no method of treating this diſorder which is infallible, none that will abſolutely and in all caſes prevent a return, eſpecially in ſcrophulous habits; yet when a juſt diſtinction is made between thoſe caſes which are in their own nature incapable of cure, and thoſe which by being improperly treated are not cured, I am inclined to believe, that the number of the former will be found much ſmaller, than it is generally imagined to be.

A

TREATISE

ON

RUPTURES.

KUPTUONKES

TKEATISE

PKEFACE

PREFACE.

THE diſeaſe which makes the ſubject of the following tract, is one in which mankind are, on many accounts, much intereſted; no age, ſex, rank, or condition of life, is exempt from it; the rich, the poor, the lazy, and the laborious, are equally liable to it; it produces certain inconvenience to all who are afflicted by it; it ſometimes puts the life of the patient in ſuch hazard, as to require one of the moſt delicate operations in ſurgery; and it has in all times, from the moſt antient, down to the preſent, rendered thoſe who labour under it ſubject to the moſt iniquitous frauds and impoſitions.

The generality of mankind look upon a rupture as an imperfection in their form, as a diſeaſe which impairs their ſtrength, and leſſens their generative faculty: which apprehenſions, though abſolutely groundleſs, are ſo firmly rooted, in the majority of thoſe who are afflicted with the diſorder, as to make them not a little miſerable. They who lie in wait to avail themſelves of the weakneſſes of the infirm and fearful, are well acquainted with theſe fears, and very lucrative uſe do they make of them; they well know, that the man who regards his diſorder as an imperfection in his form, or as a cauſe of any debility, more particularly a venereal one, will be very unwilling to have it known, and as glad to get rid of it, at any expence or trouble; by this means theſe impoſtors are furniſhed with

with opportunities of ſubjecting the ignorant, and credulous, to tedious confinements, painful applications, and even hazardous operations; and of defrauding the timorous, and baſhful, of large ſums of money, for imaginary diſeaſes, and pretended cures.

Complaints of this ſort, coming from the profeſſion, are generally ill received, and being ſet to the account of prejudice, intereſt, and craft, are very little regarded; but in this mankind do us great injuſtice. A rupture is a diſeaſe, which, if judiciouſly and honeſtly treated from the firſt, can never be productive of much profit to a ſurgeon; it requires very little attendance, and neither external application, nor internal medicine; though the reduction of the gut, and the application of a proper bandage, are neceſſary, yet this is in general ſo ſoon, and ſo eaſily accompliſhed, that it muſt be obvious that no great emolument can from thence be derived; and therefore, if the profeſſion may be allowed to be impartial in any thing which relates to themſelves, I think they may in this, from which they never can reap conſiderable profit, unleſs the diſeaſe has been greatly neglected, or ill-treated: it is from fraud and deluſion principally that ſuch advantage can be derived; it is from the patient's ignorance of the true nature of his diſorder, and from bold and lying promiſes made of a perfect cure.

It is far from my intention to defend the body of ſurgeons from any accuſation which may juſtly be brought againſt them; but as the reaſon given by moſt of the patrons of quackery for their ſupporting it, is, that the medical world, through mere obſtinacy, never depart from the cuſtoms of their anceſtors, nor attempt any thing new, though mankind might be much benefited by ſuch inventions: and as I think that ſuch imputation cannot with any colour of juſtice be made againſt us, I would beg leave to be indulged a few words on this ſubject.

That the merit of many of the old practitioners was great; that they left behind them many proofs both of their ſagacity, and their dexterity;

that

that we have received large information from their writings; and that, cæteris paribus, *he who is beſt acquainted with them will be the beſt ſurgeon, is well known to every one who is at all converſant with them, and can be denied only by thoſe who are not. But, on the other hand, it muſt alſo be allowed, that both their theory and their practice laboured under great diſadvantages, which rendered their judgment of many diſeaſes erroneous, and their treatment of them irrational and unſucceſsful.*

The very imperfect ſtate of their anatomy was one great ſource of error; which kind of knowledge has been ſo cultivated in our times as to convert ignorance into a vice, and to render thoſe who are deficient in it perfectly inexcuſable.

As this is the only true and ſolid baſis from which all chirurgical knowledge muſt for ever ſpring, ſo it has of late years been productive of many real, and great improvements in the art.

The antient ſurgery was coarſe, and loaded with a farrago of external applications, ſome of which were horridly, and yet unneceſſarily painful, and others altogether uſeleſs; whilſt the operative part of the art was encumbered with a multitude of awkward, unmanageable inſtruments, and pieces of machinery.

The practitioners of the preſent time have brought the practice into a much narrower compaſs, have rendered it leſs painful and more intelligible; they have reduced the number of inſtruments, and by the extreme ſimplicity of thoſe which they now uſe, they have conſiderably aſſiſted the dexterity of an operator, and ſhortened the time of an operation; they have almoſt thrown aſide the burning cautery, and are much more ſparing in the uſe of cauſtic applications than their predeceſſors uſed to be; they now accompliſh many cures by mild and gentle means, which formerly were thought not obtainable but by much ſeverity; to ſay nothing of the indelible marks which ſuch practice left behind it. The havock formerly made both of limbs and lives, by the uſe of long forceps in gun-ſhot wounds

the explosion of the long-prevailing notion that such wounds were poisonous; the easy superficial method with which they are now in general treated, and the opportunities which such treatment gives for nature to exert those powers with which the Almighty Author has furnished her, do credit to the modern practitioners: the double incision in amputations; the present method of removing cancerous breasts, and encysted tumors; the lateral operation for the stone in the bladder; the use of the cutting gorget; amputation in the joint of the shoulder; the present method of letting out all the water at once from an ascites; the improvements in the treatment of the fistula lachrymalis; the cure of the vari and valgi, with many others which might be named; in short, the superior neatness, ease, and expedition of the present surgery, when compared to the antient, are certain and undoubted improvements made by the modern practitioners, and such as mankind are much benefited by, as their pains are thereby lessened, the elegance of their figure preserved, and the time of their confinement shortened; all which will, I presume, be allowed to be advantages, while human nature shall remain sensible of pain, while scars shall be thought deformities, or confinement be deemed irksome.

Nor is our conduct, with regard to the particular disease which makes the subject of the following tract, in the least degree blameable; so far from it, that the treatment which we meet with sometimes is most singularly unjust, we being often severely censured for that from which we ought to derive praise: so little do we deserve the reflection cast upon us, of being content with what our fathers taught us, and neither improving the art ourselves, nor encouraging those who do; that, on the contrary, much pains have been taken to improve this particular part of surgery, and the publick ought to thank us for not persevering in the use of the old, tedious, painful, and hazardous processes, after we found them to be in general ineffectual.

But though I would at all times vindicate the profeſſion from every unjuſt attack, I would by no means be ſuppoſed to think that there is not large room left for the induſtry both of us and our ſucceſſors; ſome of the operative parts of the art are ſtill capable of improvement, and the treatment of ſome diſeaſes might certainly be altered for the better.

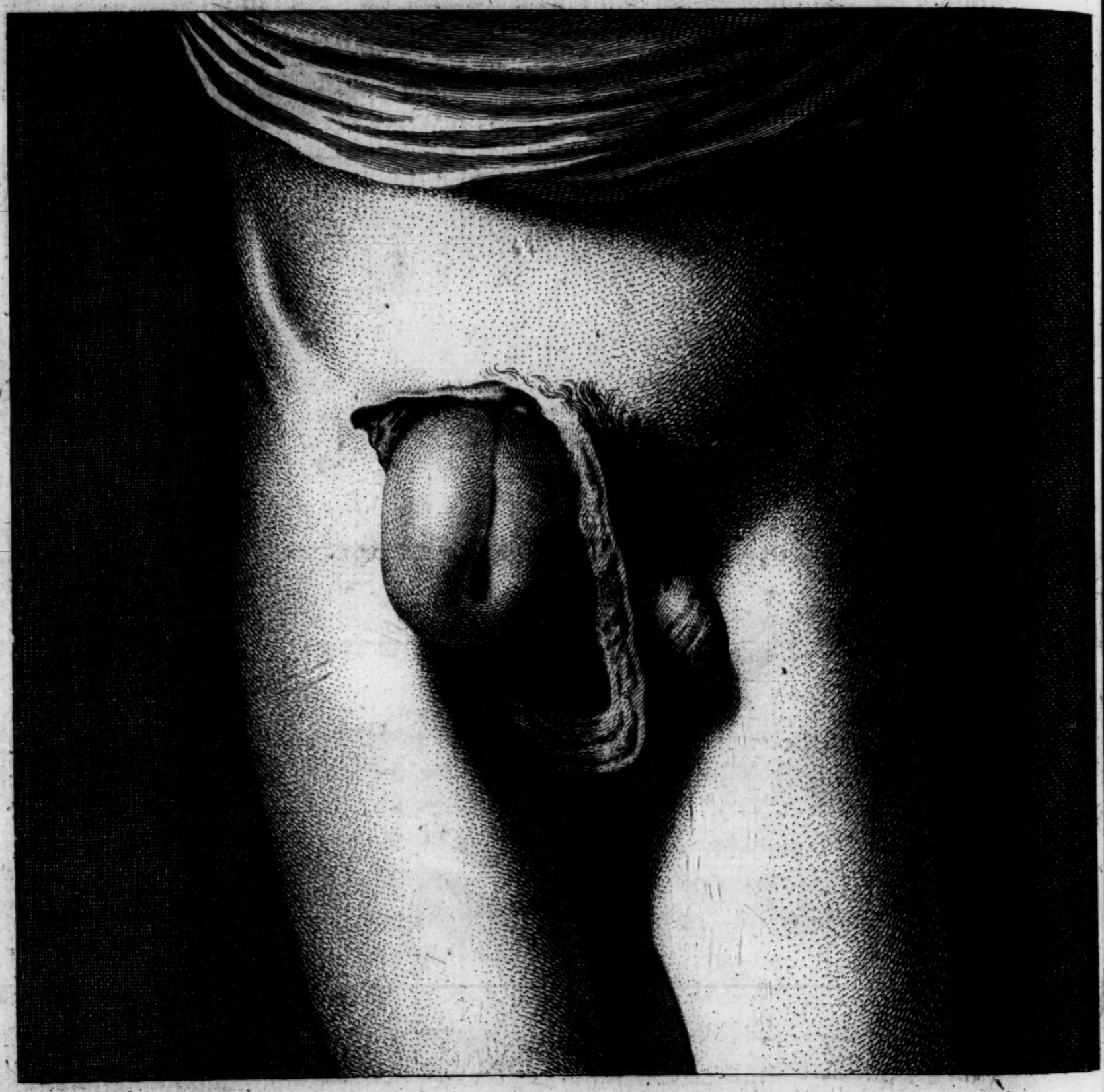
Whether our future labours ſhall be crowned with ſucceſs or not, ſtill I think it will appear to every one at all verſed in the hiſtory of ſurgery, that the practitioners of the preſent time are ſo far from deſerving the character which they who know nothing of the art have given of them, that they really deſerve a very contrary one; ſince, inſtead of obſtinately adhering to the practice of their anceſtors, they have differed from it in many inſtances, where they found they could do it with ſafety, and to the advantage of mankind; and have endeavoured to advance the utility of their profeſſion, by the only means whereby it is capable of being improved, viz. by a ſedulous app lication to anatomy, by the frequent examinations of dead morbid bodies, and by making ſuch experiments on the living, as they had juſt reaſon to think would prove beneficial; candidly acknowledging, at the ſame time, where they have found their art inſufficient, and not perſiſting in tormenting their fellow-creatures merely for gain.

In the following treatiſe I have endeavoured to expreſs myſelf in as plain, explicit, and intelligible a manner as I am able, and the ſubject will admit; being deſirous as much as I can to inform mankind of the true nature of the diſeaſe, of the danger they incur, and the frauds they are liable to, from the ignorance of one ſet of quacks, and the worſe qualities of another; to ſhow what the art of ſurgery in judicious hands is capable of doing, and how eſſentially the conduct of an impoſtor differs from that of an honeſt man, who will never be aſhamed of confeſſing that he cannot do what is not in his power.

In the first edition of this book were many faults; some of the press, some of the author; in this some pains have been taken to lessen both: of typographical errors very few, if any, will, I hope, be found; and wherever it has appeared to me that the matter of the treatise was obscure, erroneous, or deficient, I have altered, corrected, and added to it.

I am still far from thinking that it is perfect or faultless; but, on the other hand, I am not conscious of having advanced any thing in it which is not strictly true, and agreeable to the most successful practice: improvement of the art of surgery, and the relief of mankind, are my two principal objects; and if what I have now, or at any other time written, shall be found to have contributed toward accomplishing either of those ends, I hope the reader will excuse all those lesser faults,

-----quas aut incuria fudit,
Aut humana parum cavit natura.



A TREATISE ON RUPTURES.

SECTION I.

BY the term RUPTURE, DESCENT, or HERNIA, is in general meant a ſwelling produced by the falling down, or protruſion, of ſome part, or parts, which ought naturally to be contained within the cavity of the belly.

The places in which theſe ſwellings make their appearance, in order to form what is called a RUPTURE, are the groin, the navel, the labia pudendi, the upper and fore part of the thigh, and every point of the anterior part of the abdomen.

The parts, which by being thruſt forth from the cavity, in which they ought naturally to remain, and which form theſe tumors, are a

portion

portion of the omentum, a part of the inteſtinal canal, and * ſometimes (though very rarely) the ſtomach.

From theſe two circumſtances, of ſituation, and contents, are derived all the different appellations by which herniæ are diſtinguiſhed: for example, they are called *inguinal*, *ſcrotal*, *femoral*, *umbilical*, and *ventral*, as they happen to make their appearance in the groin, cod, thigh, navel, or belly. If a portion of inteſtine only forms it, it is called *enterocele*, *hernia inteſtinalis*, or gut-rupture; if a piece of omentum only; *epiplocele*, *hernia omentalis*, or caul-rupture; and if both inteſtine and omentum contribute mutually to the formation of the tumor, it is called *entero-epiplocele*, or compound rupture.

If the piece of gut or caul deſcends no lower than the groin, it is ſaid to be incompleat, and is called *bubonocele*; if the ſcrotum be occupied by either of them, the rupture is ſaid to be complete; and bears the name of *oſcheocele*: the latter uſed by our forefathers to be attributed to laceration of the peritoneum, the former to its dilatation merely.

The opinion, that the ſcrotal hernia is occaſioned by a forcible diviſion, or breach, made in the peritoneum, has always been, and ſtill is, with the unknowing, a very prevailing one, though without any foundation in truth; both the ſcrotal, and femoral, paſs out from the abdomen by openings which are natural to every human body; as well thoſe who have not ruptures, as thoſe who have. The former, that is the ſcrotal, deſcend by means of an aperture in the tendon of the external oblique muſcle, near the groin; deſigned for the paſſage of the ſpermatic veſſels in men, and the ligamenta uteri in women; and the latter, under the hollow, made by Poupart's, or Fallopius's ligament,

* The liver, ſpleen, uterus, bladder, &c. have at different times been found in different herniæ, but theſe are ſo rare as not to come within a general deſcription.

ment, at the upper part of the thigh, along with the great crural vein and artery.

The pair of muſcles called obliqui externi aſcendentes, cover all that part of the belly which is without bone, and the lower and anterior parts of the thorax. They are fleſhy on the ſides, and tendinous in the middle, and lower part; they ſpring from the ſeventh and eighth ribs, and from all below them, by fleſhy portions, which indigitate with correſponding parts of two other muſcles, called the ſerratus major anticus, and the latiſſimus dorſi, and becoming tendinous, are inſerted into what is called the linea alba, the ſpine of the os ilium, and into the os pubis.

At the lower part of the belly, on each ſide, a little above the laſt-mentioned bone, the fibres of the tendon of this muſcle ſeparate from each other, and form thereby two apertures, through which paſs the ſpermatic veſſels in men, and the ligamenta uteri in women. Theſe openings are of an oval figure, and have an oblique direction from above downward; the upper part of them is rather wider than the lower, and they are of larger ſize in men than in women.*

The tendinous fibres of this muſcle, as they proceed from its fleſhy part obliquely downward, have ſeveral ſmall apertures for the paſſage of veſſels and nerves; and at their inſertion into the os pubis, they croſs one another, and are as it were interwoven, by which means their inſertion is ſtrengthened, and their attachment made firmer.

What is called by the particular name of Poupart's ligament is really nothing more than the lower border of this tendon, ſtretched from the

* A detachment of fibres from the faſcia lata of the thigh is generally united with the tendon compoſing the aperture in the obliquus externus, which mixture or connexion of fibres, will in ſome meaſure account for the pain which they who labour under ſtrangulated ruptures feel upon ſtanding upright, and the relief which bending the thigh upward toward the belly always gives them.

the fore part of the os ilium, or haunch-bone, to the os pubis, and turned, or folded inward at its interior edge.

The other muſcles of the belly are the obliquus internus, the tranſverſalis, the rectus, and the pyramidalis, none of which have any concern with our preſent ſubject. The ſpermatic chord does indeed paſs under the lower edge or border of the two firſt of theſe, but at ſuch diſtance, and in ſuch manner, that no action of theſe muſcles can any way affect, or ever make any ſtricture either on it, or on a hernia accompanying it; they have no perforations, or apertures, though ſo many writers of credit (even late ones) have both deſcribed and delineated them,* conſequently they can have no ſhare in the embarraſſment of the parts contained in a hernial ſac, nor require any diviſion in that operation, which becomes ſometimes neceſſary towards ſetting them free: which is a fact of no ſmall conſequence to an operator.

The inſide of theſe muſcles, and indeed the whole cavity of the belly, is lined with a ſmooth, firm, but eaſily-dilatable membrane, called

* However incredible and ſtrange it may ſeem, yet I am convinced, that operations have been performed by the information obtained from books only, without any previous anatomical knowledge, any practice on dead bodies, and hardly any, if any, opportunities of ſeeing ſuch operations performed by others on the living: how groſsly muſt ſuch an operator be deceived by the account of the rings, as they are uſually, though abſurdly, called, of the abdominal muſcles: after he has divided the firſt, or that of the external oblique, he will expect to find a ſecond in the internal, and a third in the tranſverſalis, and will never ſuppoſe that he is got into the cavity of the belly, 'till he has divided all the three; it is therefore of the utmoſt conſequence that this matter be ſet right, and that, notwithſtanding what has been ſaid on this ſubject by writers of great eminence, every ſurgeon be informed that the external oblique muſcle is the only one which has any opening in it; that the deſcription given by Mr. Cheſelden of theſe muſcles, in the laſt edition of his anatomy, is erroneous, and all deſcriptions and all delineations (ſome of which are to be found even in later writers) of more openings than that ſingle one on each ſide, are not repreſentations of nature, but are the images of a luxuriant fancy, and have no foundation in truth.

called the peritoneum, a minute account of which would lead me beſide my preſent purpoſe, and therefore I ſhall only obſerve, that it lines the whole abdomen, and gives an external coat to every viſcus contained in it.

Behind the peritoneum lies a looſe, cellular membrane, by ſome called its appendix, which is found in different quantity, in different places. In ſome the cells are empty, and are immediately viſible upon being blown into; in other parts it is plentifully ſtocked with fat, and, though ſomewhat varied in its appearance in different places, is found in moſt parts of the body.

This cellular membrane, void of fat, ſurrounding the ſpermatic veſſels, as they paſs forth from the cavity of the abdomen into the groin, is called the tunica vaginalis of the chord, or tunica communis vaſorum ſpermaticorum; which chord, thus enveloped, paſſing under the inferior edge or border of the tranſverſalis, and internal oblique muſcles, and through the perforations or natural apertures of the external oblique, deſcends through the groin to the teſticle, in ſuch manner, that the ſpermatic veſſels in their paſſage from the cavity are really and truly behind the peritoneum.

The tunica vaginalis teſtis is a membrane perfectly diſtinct from this, forming a particular cavity which includes the glandular ſubſtance of the teſticle, and has nothing to do with a common rupture. In every fœtus, until, or very near until the time of birth, there is an open and free communication between the cavity of this laſt tunic, and that of the belly, for the paſſage of the teſticle from the abdomen into the ſcrotum: ſoon after birth this paſſage cloſes and becomes impervious; nor is there ever after the time of ſuch cloſing, any communication between the cavity of the belly, and that of the tunica vaginalis teſtis. But tho' the paſſage remains in general for ever ſhut, yet the place where its orifice, or mouth, was, may always be known by

a kind of cicatricula, much like to what appears within the abdomen, oppoſite to the navel, or place where the umbilical veſſels of the fœtus paſſed to and from the placenta; at the place of which cicatricula, the peritoneum is generally weaker than elſewhere. Now, if it be remembered, that this weak part is neceſſarily oppoſite to the natural opening in the tendon of the external oblique muſcle, that neither the internal oblique muſcle, nor the tranſverſalis, come low enough to make any reſiſtance to whatever ſhall preſs againſt this part, and that the acknowledged uſe of the muſcles of the abdomen is by preſſing on all its contained viſcera to aſſiſt digeſtion, the expulſion of the fæces, urine, and fœtus; and that in many natural actions, ſuch as ſneezing and coughing, &c. and in all great exertions of ſtrength and force, our erect poſture muſt neceſſarily occaſion a preſſure to be made againſt the lower part of the inſide of the belly, by ſome of its contents; a very probable and ſatisfactory account of the origin of the common inguinal and ſcrotal hernia may be collected.

In young children this deſcent, or protruſion, happens moſt frequently when the child ſtrains in crying, or in expelling its fæces: as ſoon as the effort ceaſes, and the child is quiet, the part generally returns up again, and the ſwelling diſappears: the nurſes call it wind, and it is at firſt moſt frequently neglected, as the child is not apparently injured by it, and few people are ſufficiently aware of its poſſible conſequences.

Not that the diſeaſe is by any means confined to children: adults frequently are attacked by it, either by falls, ſtrains, great exertions of ſtrength, difficulty of expelling hard fæces, or a general laxity of frame.

Whether the rupture be inguinal, ſcrotal, or femoral, and whether it conſiſts of inteſtine, or omentum, or both, the protruded part muſt carry before it a part of the membrane which lines all the internal

ſurface

ſurface of the abdominal muſcles, or rather the whole cavity of the abdomen, and is called peritoneum. This portion of the peritoneum, including the piece of gut or caul, is known by the name of the *hernial ſac*, and is larger, or ſmaller, according to the quantity of inteſtine, or omentum, contained in it; it is at firſt ſmall and thin, and in ruptures which are not of the congenial kind, ſeldom comes lower than the groin * at firſt, but by repeated deſcents it extends itſelf lower and lower, 'till it gets quite into the ſcrotum, and ſtill as it is extended in length, it becomes thicker and firmer in texture, 'till in old age, or old ruptures, it is found of very conſiderable thickneſs.

As all parts of the peritoneum are of a very extenſible, dilatable nature, and as the hernial ſac has this property in common with many other parts of the body, of thickening as it extends, it does in ſome caſes ſtretch to a very conſiderable ſize, and contain ſuch a quantity of inteſtine and omentum as is almoſt incredible. This circumſtance of its becoming thicker as it is more extended is perhaps the reaſon why ſome people, and among them the late Mr. Cheſelden, have been of opinion that the ſac of a hernia was not an elongation of the peritoneum, but produced like that of an aneuriſm, and ſome other tumors, by mere preſſure of the common cellular membrane; an opinion, which is manifeſtly and demonſtrably erroneous.

Whether the hernial ſac in its infant ſtate, while it is very thin, and may poſſibly have contracted no adheſion to the cellular membrane compoſing the tunica communis of the ſpermatic veſſels, does ever return back into the belly again, I will not take upon me to de-

* I will not ſay poſitively that all thoſe ruptures which appear in the ſcrotum of very young children are congenial, (that is, have the tunica vaginalis teſtis for their hernial ſac) but all thoſe which I have had an opportunity of examining have proved ſo; and I believe it would be no very erroneous criterion, whereby to diſtinguiſh the common rupture from the congenial, in infants.

termine abſolutely, but am much inclined to think it does not, as well from the facility with which the gut or caul moſt commonly deſcend after they have been down a few times, as from a fulneſs which is always to be perceived in the ſpermatic proceſs of ſuch people as have ever been ruptured. Some few of theſe I have had opportunities of opening after death, and have always found the ſac, either in the groin or ſcrotum, (plainly a continuation of the peritoneum) remaining firmly attached to, and connected with the tunica communis; nor did I ever ſee, either in the dead or the living, any reaſon or authority for the ſuppoſition, that it is capable of returning back into the abdomen after it has been fairly puſhed out through the aperture in the tendon.*

I intentionally avoid ſaying any thing about the old doctrine of the difference between dilatation and laceration of the peritoneum, it being now generally known and acknowledged, that to whatever ſize the hernial ſac may be extended, and however large its contents may be, it is merely dilated, and hardly ever burſt or broken. The particular kind of caſe, which a few years ago gave riſe to a ſort of renewal of the old doctrine of ruptures by laceration of the hernial ſac, viz. that kind of hernia in which the gut and teſticle are found in the ſame

* This is a circumſtance of ſome importance in the general treatment of ruptures. Upon it depends the truth or falſhood of the late doctrine of the poſſibility of returning the inteſtine included in the hernial ſac, and confined by ſuch a ſtricture of the ſac itſelf, as may prove fatal after the gut is fairly got into the abdomen again. A caſe, of which more than one inſtance has been given to us, but in which I am much inclined to believe that ſome miſtake has been made, and which I alſo think may be accounted for in another and more ſatisfactory manner. Upon this alſo depends the practicability or impracticability of returning a ſtrangulated piece of gut back into the belly, after having divided the ſtricture made by the tendon, without opening the hernial ſac, and conſequently the propriety or impropriety of making ſuch attempt. All endeavours to do what is impracticable, being in caſes of importance much worſe than doing nothing.

ſame bag, and in immediate contact with each other, being now ſufficiently known and explained. See Sect. X. of this Tract.

THE ſigns, or marks, of a common inguinal or ſcrotal rupture, are in general a ſwelling in the upper part of the ſcrotum, or in the groin, beginning at the opening in the abdominal muſcles where the ſpermatic veſſels paſs down from the belly; which tumour has a different appearance, and different feel, according to the nature of its contents, and to the ſtate and quantity of them.

If a portion of inteſtine forms it, and that portion be ſmall, the tumour is ſmall in proportion; but though ſmall, yet if the gut be diſtended with wind, inflamed, or have any degree of ſtricture made on it, it will be tenſe, reſiſt the impreſſion of the finger, and give pain upon being handled. On the contrary, if there be no ſtricture made by the tendon, and the inteſtine ſuffers no degree of inflammation, let the prolapſed piece be of what length it may, and the tumor of whatever ſize, yet the tenſion will be little, and no pain will attend the handling it; upon the patients coughing, it will feel as if it was blown into, and in general it will be found very eaſily returnable.

If the hernia be of the omental kind, the tumor has a more flabby and a more unequal feel; it is in general perfectly indolent, is more compreſſible, gives the ſcrotum a more oblong, and leſs round figure, than it bears in an inteſtinal hernia; and if the quantity be large, and the patient adult, it is in ſome meaſure diſtinguiſhable by its greater weight.

If it conſiſts of both inteſtine and omentum, the characteriſtic marks will be leſs clear than in either of the ſimple caſes, but yet will to any body who is accuſtomed to theſe diſeaſes be ſufficiently ſo, to enable them to diſtinguiſh it from any other complaint.

The

The only diſeaſes with which a true hernia can be confounded, are the *venereal bubo*, the *hydrocele*, and that defluxion on the teſticle, called *hernia humoralis*; from each of which it is certainly very diſtinguiſhable.

The circumſcribed incompreſſible hardneſs, the ſituation of the tumor and its being free from all connection with the ſpermatic proceſs, will ſufficiently point out the firſt, at leaſt while it is in a recent ſtate; and when it is in any degree ſuppurated, he muſt have a very ſmall ſhare of the *tactus eruditus*, who cannot feel the difference between matter, and either a piece of inteſtine, or omentum.

The perfect equality of the whole tumor, the freedom and ſmallneſs of the ſpermatic proceſs above it, the power of feeling the ſpermatic veſſels and the vas deferens in that proceſs, its being void of pain upon being handled, the fluctuation of the water, the gradual formation of the ſwelling, its having begun below and proceeded upwards, its not being affected by any poſture or action of the patient, nor increaſed by his coughing or ſneezing, together with the abſolute impoſſibility of feeling the teſticle at the bottom of the ſcrotum,* will always, to any intelligent perſon, prove the diſeaſe to be a *hydrocele* of the *tunica vaginalis teſtis*. And in the hernia humoralis,

* By this remark it may poſſibly be thought that I mean to ſay, that the teſticle is always to be felt at the bottom of the ſcrotum in a true hernia; which in general is true, but not without ſome exceptions. In recent ruptures, of the common kind, whether of the gut, or caul, while the hernial ſac is thin, has not been long, or very much diſtended, and the ſcrotum ſtill preſerves a regularity of figure, the teſticle may almoſt always be eaſily felt at the inferior and poſterior part of the tumor: but in old ruptures, which have been long down, in which the quantity of contents is large, the ſac conſiderably thickened, and the ſcrotum of an irregular figure, it often happens that the teſticle is not to be felt, neither is it in general eaſily felt in a *congenial hernia*, for very obvious reaſons.

ralis, the pain in the teſticle, its enlargement, the hardened ſtate of the epidydimis, and the exemption of the ſpermatic chord from all unnatural fulneſs, are ſuch marks as cannot eaſily be miſtaken; not to mention the generally preceding gonorrhea. But if any doubt ſtill remains of the true nature of the diſeaſe, the progreſs of it from above downward, its different ſtate and ſize in different poſtures, particularly laying and ſtanding, together with its deſcent and aſcent, will, if duly attended to, put it out of all doubt, that the tumor is a *true hernia*.

If an attempt be made for the reduction of the rupture, and it conſiſted of a piece of inteſtine, it generally ſlips up all at once. In its return it makes a kind of guggling noiſe, and when it is up, the ſcrotum and proceſs will be found free from any præternatural fulneſs. If a portion of omentum formed it, it retires more gradually, without any of the noiſe of the former, and requires to be followed by the finger to the laſt. If both gut and caul contributed to the formation of it, the gut generally goes up firſt, and leaves a flabby irregular kind of body behind it, which ſtill poſſeſſes the proceſs or ſcrotum, according as the diſeaſe was bubonocele, or oſcheocele, and requiring ſtill farther compreſſion, at laſt aſcends.

The inteſtine ſaid to be moſt frequently found in a ſcrotal hernia, is the ileum, though it is alſo allowed that the cœcum, and part of the colon have been met with.

This is one of the many maxims which writer receives from writer, and inattentive readers all believe.

That a portion of the ileum does often deſcend in a hernial ſac is beyond all doubt; but that the deſcent, or more properly protruſion, of a part of the cœcum and colon is rare, is not true, for it happens very frequently. Perhaps it would not bear to be eſtabliſhed as a general rule; but from what has fallen within my obſervation, in frequently

quently performing the operation for a ſtrangulated rupture, it has appeared to me, that the greater number of thoſe in whom it has become neceſſary (all attempts to reduce the parts by hand having proved fruitleſs), have conſiſted of the cœcum with its appendicula, and a portion of the colon. Nor will the ſize, diſpoſition, and irregular figure of this part of the inteſtinal canal, appear upon due conſideration a very improbable cauſe of the difficulty or impoſſibility of reduction by the hand only.

I have already mentioned the principal circumſtances by which hernias are diſtinguiſhable from other diſeaſes. But it is alſo to be obſerved, that the ſame kind of rupture in different people, and under different circumſtances, wears a very various face; the age and conſtitution of the ſubject, the date of the diſeaſe, its being free, or not free from ſtricture, or inflammation, the ſymptoms which attend it, and the probability or improbability of its being returnable, neceſſarily producing much variety; the degree of hazard attending this complaint will be alſo more or leſs as it ſhall happen to be circumſtanced.

If the ſubject be an infant, the caſe is not often attended with much difficulty, or hazard; the ſoftneſs and ductility of their fibres generally rendering the reduction eaſy as well as the deſcent; and though from neglect or inattention it may fall down again, yet it is as eaſily replaced, and ſeldom produces any miſchief: I ſay ſeldom, becauſe I have ſeen an infant, one year old, die of a ſtrangulated hernia, which had not been down two days, with all the ſymptoms of mortified inteſtines.

If the patient be adult, and in the vigour of life, the conſequences of neglect, or of mal-treatment, are more to be feared than at any other time, for reaſons too obvious to need relating. The great and principal miſchief to be apprehended in an inteſtinal hernia, is an in-

flammation

ſlammation of the gut, and an obſtruction to the paſſage of the aliment, and fæces through it; which inflammation and obſtruction are generally produced by a ſtricture made on the inteſtine, by the borders of the aperture in the tendon of the abdominal muſcle, through which the hernia and its ſac paſs. Now it muſt be obvious, that the greater the natural ſtrength of the ſubject is in general, and the more liable to inflammation, the greater probability there muſt be of ſtricture, and the more miſchief likely to enſue from it. In very old people, the ſymptoms do not uſually make ſuch rapid progreſs, both on account of the laxity of their frame, and their more languid circulation; and alſo that their ruptures are moſt frequently of antient date, and the paſſage a good deal dilated: but then, on the other hand, it ſhould alſo be remembered that they are by no means exempt from inflammatory ſymptoms; and that if ſuch ſhould come on, the infirmity of old age is no favourable circumſtance in the treatment which may become neceſſary.

If the diſeaſe be recent, and the patient young, immediate reduction, and conſtant care to prevent its puſhing out again, are the only means whereby it is poſſible to obtain a perfect cure.

If the diſeaſe be of long ſtanding, has been neglected, or ſuffered to be frequently down, and has given little or no trouble, the aperture in the abdominal muſcle, and the neck of the hernial ſac may both be preſumed to be large; which circumſtances in general render immediate reduction leſs neceſſary and leſs difficult, and alſo fruſtrate all rational expectation of a perfect cure. On the contrary, if the rupture be recent, or though old has generally been kept up, its immediate reduction is more abſolutely neceſſary, as the riſque of ſtricture is greater from the ſuppoſed ſmalneſs of the aperture, and narrowneſs of the neck of the ſac. If the rupture be very large, and ancient, the patient far advanced in life, the inteſtine not bound by

any degree of ſtricture, but does its office in the ſcrotum regularly, and no other inconvenience be found to attend it, but what proceeds from its weight, it will in general be better not to attempt reduction, as it will in theſe circumſtances moſt probably prove fruitleſs, and the handling of the parts in the attempt, may ſo bruiſe and injure them as to do miſchief: but this muſt be underſtood to be ſpoken of thoſe only in which there is not the ſmalleſt degree of ſtricture, nor any ſymptom of obſtruction in the inteſtine; ſuch circumſtances making reduction neceſſary at all times, and in every caſe.

With regard to the contents of a hernia, if it be a portion of omentum only, and has been gradually formed, it ſeldom occaſions any bad ſymptoms, though its weight will ſometimes render it very troubleſome. But if it be produced ſuddenly by effort or violence, that is, if a conſiderable piece of the caul by accident ſlip down at once, it will ſometimes prove painful, and cauſe very diſagreeable complaints; the connection between the omentum, ſtomach, duodenum, &c. being ſuch, as to render the ſudden deſcent of a large piece of the firſt ſometimes productive of nauſea, vomiting, cholic, and all the diſagreeable ſymptoms ariſing from the derangement of theſe viſcera. When the piece of caul is engaged in ſuch a degree of ſtricture as to prevent the circulation of blood through it, it will ſometimes, by becoming gangrenous, be the occaſion of very bad ſymptoms, and even of death, as I have more than once ſeen: and thus, as a mere omental hernia, it may ſometimes be ſubject to great hazard. But even though it ſhould never be liable to the juſt-mentioned evil, that is, though the portion of the caul ſhould remain uninjured in the ſcrotum, yet it renders the patient conſtantly liable to hazard from another quarter; it makes it every moment poſſible for a piece of inteſtine to ſlip into the ſame ſac, and thereby add to the caſe all the trouble and all the danger ariſing from an inteſtinal

rupture.

rupture. It is by no means an uncommon thing for a piece of gut to be added to a rupture, which had for many years been merely omental, and for that piece to be ſtrangulated, and require immediate help.

An old omental hernia is often rendered not reducible, more by an alteration made in the ſtate of the prolapſed piece of caul, than by its quantity. It is very common for that part of the omentum which paſſes through the neck of the ſac to be compreſſed into a hard, ſmooth body, and loſe all appearance of caul, while what is below in the ſcrotum is looſe and expanded, and enjoys its natural texture: in this caſe reduction is often impoſſible, from the mere figure of the part; and I have ſo often ſeen this, both in the living and the dead, that I am ſatisfied, that for one omental rupture rendered irreducible by adheſions, many more become ſo from the cauſe above-mentioned.

In the ſac of old omental ruptures that have been long down, and only ſuſpended by a bag truſs, it is no very uncommon thing to have a pretty conſiderable quantity of fluid collected: this, in different ſtates and circumſtances of the diſeaſe, is of different colour and conſiſtence, and ſeldom ſo much in quantity as to occaſion any particular attention to it; but, on the other hand, it ſometimes is ſo much in quantity as to become an additional diſeaſe to the original one. I have more than once been obliged to let it out, in order to remove the inconvenience ariſing from its weight, and the diſtention of the ſcrotum, which I have alſo ſeen become gangrenous by the neglect of this operation.

If the hernia be of the inteſtinal kind, merely, and the portion of gut be ſmall, the riſque is greater, ſtrangulation being more likely to happen in this caſe, and more productive of miſchief, when it has happened: for the ſmaller the portion of gut is which is en-

gaged, the tighter the tendon binds, and the more hazardous is the conſequence. I have ſeen a fatal gangrene, in a bubonocele, which had not been formed forty-eight hours, and in which the piece of inteſtine was little more than half an inch. There are few practitioners who have ſeen buſineſs, but know the truth of this; but perhaps the reaſon of it is not ſufficiently explained to the unknowing: it is this; when a conſiderable portion of inteſtine paſſes out from the belly in a hernial ſac, it neceſſarily and unavoidably carries with it a proportional quantity of the meſentery, which every body knows is a ſtrong double membrane. When the prolapſed part is at all conſiderable, this double membrane is again in ſome meaſure folded on itſelf, and takes off a good deal of the effect of the ſtricture on the inteſtine. Now although this circumſtance will not prevent the effect, if the means of relief be totally neglected, yet it will moſt certainly retard the evil, and give more time for aſſiſtance; whereas, when there is little or none of the meſentery got through the tendon, and the thin, tender inteſtine bears all the force of the ſtricture, it is immediately brought into hazard.

The practical inference to be drawn from hence is too obvious to need mentioning.

In the inteſtinal, as in the omental hernia, they which have been often or long down, are in general more eaſily returned, and do not require ſuch immediate aſſiſtance, as they which have ſeldom been down, or have recently deſcended; and in the one kind of hernia as well as in the other, the ſtate of the hernial ſac with regard to ſize, thickneſs, &c. depends very much on the date of the diſeaſe, and the regard that has been paid to it.

If the hernia be cauſed by a portion of the inteſtine ileum only, it is in general more eaſily reducible than if a part of the colon has deſcended with it, which will alſo require more addreſs and more patience

tience in the attempt. The reduction of a mere inteſtinal hernia too (cæteris paribus) will always remain more practicable than that of a mere omental one, after it has attained to a certain ſize and ſtate, as the part contained within the former is liable to leſs alteration of form than that within the latter; which alteration has already been mentioned as no infrequent hindrance of the return of an old caul rupture.

Not that the parts within a mere inteſtinal hernia are abſolutely exempt from ſuch an alteration as may render their return into the belly impracticable, even where there is no ſtricture; for I have ſeen that part of the meſentery, which has lain long in the neck of the ſac of an old rupture, ſo conſiderably hardened and thickened, as to prove an inſuperable obſtacle to its reduction.

Upon the whole, every thing conſidered, I think it may be ſaid, that an inteſtinal rupture is ſubject to worſe ſymptoms, and a greater degree of hazard than an omental one, though the latter is by no means ſo void of either as it is commonly ſuppoſed to be; that bad ſymptoms are more likely to attend a recent rupture than one of ancient date; that the deſcent of a very ſmall piece of inteſtine is more hazardous than that of a larger; that the hernia which conſiſts of gut only is in general attended with worſe circumſtances than that which is made up both of gut and caul; and that no true judgment can be formed of any rupture at all, unleſs every circumſtance relating to it be taken into conſideration.

THE cure of a rupture is either perfect, (called alſo radical) or imperfect, which is called palliative.

This diſtinction, which is juſt and true, and founded both on reaſon and experience, has frequently been miſunderſtood by the generality

lity of mankind, and has therefore been the cauſe of much undeſerved cenſure on the practitioners of ſurgery.

The truth is, that though the events are extremely different, yet the chirurgical means which are made uſe of in either caſe are exactly the ſame, viz. reduction of the protruded parts, and retention of them when ſo reduced by proper bandage: theſe, ſometimes, and in ſome circumſtances, produce a perfect cure; at other times, and under other circumſtances, prove only a palliative one; and this uncertainty of event, being dependent on cauſes which a ſurgeon can neither foreſee, nor direct with any tolerable degree of certainty, ſhould warn him againſt being too forward in making a promiſe.

To thoſe who are ignorant of the anatomical ſtructure and diſpoſition of the parts concerned in the diſeaſe, this aſſertion has the air of a paradox: they naturally ſuppoſe that the means which are or ſhould be made uſe of to obtain a radical or perfect cure, are or ought to be different from thoſe uſed toward obtaining only a palliative one; and in this miſtake they are confirmed by the bold, though falſe aſſertions of all rupture-quacks.

To labour under a troubleſome diſorder, perhaps in the moſt joyous and active part of life, is very diſagreeable: to be told that a palliative cure, by the conſtant uſe of a truſs, is all that can reaſonably be expected, gives ſmall comfort, and renders the inſinuation, that the regular profeſſors of ſurgery do not underſtand the proper treatment of this diſeaſe, credible, or at leaſt makes it be believed; *quod volumus, facile credimus.* Ignorance of the true nature of the diſorder, with a ſtrong deſire to be well, on the ſide of the patient, and bold plauſible promiſes on the ſide of the pretender, encourage the deluſion, 'till time, and the continuance of the rupture, prove the fraud, which few are found ingenuous enough to own. Whether it proceeds from a falſe baſhfulneſs, which makes a man be aſhamed of acknowledging that

that he has been impoſed upon; from a deſire merely to conceal the diſorder; from a pleaſure ariſing from ſeeing others deceived as well as themſelves; or from a much worſe cauſe than either of theſe, I know not: but it happens not very infrequently that the patient, though perfectly undeceived, and convinced of the impoſition, concurs in propagating the deluſion, and aſſerts that he has received a cure, which he knows he has not. Of this I could produce many inſtances, and ſome of thoſe among people of ſuch rank, as one would expect ſhould ſet them above ſuch diſingenuouſneſs.

I have already ſaid, that to replace the prolapſed body, or bodies, within the cavity of the belly, and to prevent their falling out again, by means of a proper bandage, is all that the art of ſurgery is capable of doing in this diſeaſe: and what I ſaid was ſtrictly true. But it muſt alſo be remembered, that nature, according to the age of the patient, the date of the diſeaſe, the kind of rupture, and ſome other circumſtances, is often capable (when properly aſſiſted, and not obſtructed) of doing more, and of confirming that as a perfect cure in ſome, which in others ſhe leaves imperfect, and conſtantly requiring the aſſiſtance of art: for when the portion of gut or caul, or whatever formed the tumor, is perfectly and properly replaced in the belly, and an opportunity thereby given to the aperture in the tendon to contract itſelf, and for a proper bandage to bring the ſides of the entrance of the hernial ſac as near together as it will admit, the ſurgeon has really done his part; what remains is that of nature: and whether ſhe will be capable of ſo contracting the part, as to prevent a future deſcent or not, is matter of great uncertainty; it is a circumſtance which art has very little power of aſſiſting, and which can be known only from the event.

On

On the contrary, all the pretenſions, which have at different times been made to remedies, indued with a capacity of healing and conſolidating the parts ſuppoſed to be broken or torn, or of conſtringing ſuch as are dilated, have all proved inefficacious and deluſive, to ſay the beſt of them: the parts concerned in this diſeaſe, and which ought to be affected by the operation of ſuch remedies, are abſolutely out of the reach of any applications or medicines whatever: the relief which ſome people have found while under ſuch proceſſes, has been from the long reſt which they have been ſubjected to, or from the ſtrict bandage which has been put upon them; either of which will in ſome caſes do a great deal; while the remedies which are either applied or taken, are made uſe of merely to deceive, and never had, or can have, any ſhare in the real cure of a rupture.

By what has been ſaid, I muſt beg not to be underſtood to mean that when the gut or caul have been once replaced, the patient can receive no farther benefit from chirurgical aſſiſtance; nor that every rupture in perſons of mature age is incapable of perfect cure: this is far from my meaning, and far from truth. There are many circumſtances attending ruptures, which will require frequent aſſiſtance, in order to render a cure more probable; and there are many ruptures in perſons of mature age, which will admit of perfect cure, if properly and judiciouſly managed from the firſt.

I only mean to contradict that poſitive aſſertion which all rupture-quacks make uſe of, and which too many of mankind believe, viz. that there are medicines and applications which are ſpecific in the cure of this diſeaſe, and that they (ſuch quacks) are poſſeſſed of them; both which are abſolutely falſe.

As this is a matter of ſome importance to mankind, and may poſſibly be rendered ſtill more intelligible by a few words, I beg leave to be indulged in them.

The

The general doctrine is, that the ruptures of infants, and of very young children, frequently admit of a perfect cure; thoſe of adults leſs frequently; and thoſe of old people ſeldom or never; all which, with certain limitations, is true.

The great and material difference between theſe conſiſts in the ſtate of the hernial ſac, and that of the aperture in the abdominal tendon through which it paſſes.

The ſac of a hernia has already been deſcribed as being an elongation or proceſs of the peritoneum, or general lining of the cavity of the belly, thruſt down before the body conſtituting the ſwelling; which body is enveloped in it as in a bag, ſomewhat reſembling what is vulgarly called a thumb-ſtall, or the finger of a glove cut off. While the hernia is recent, this bag is thin and fine, like the reſt of the membrane of which it is a portion; and being of a very dilatable nature is eaſily enlarged, according to the quantity of contents which inſinuate themſelves into it: like ſome other parts of the body, it increaſes in thickneſs and toughneſs as it increaſes in capacity; and as it ſeldom, if ever, returns back into the belly after it has once paſſed out from it, it is by the repeated deſcents of a portion of gut, or caul, into it, gradually inlarged in ſize, and conſequently in thickneſs; inſomuch that in old ruptures that have been neglected, or deemed irreducible, or been ſuffered to remain long, or always down, it generally acquires a very conſiderable degree of toughneſs, thickneſs, and hardneſs. In thoſe ruptures which are not of the congenial kind, at firſt it gets no lower than the groin, and while it remains there is generally ſmall and thin; but by frequent protruſions of the inteſtine or omentum, it is puſhed by degrees into the ſcrotum, and then moſt frequently acquires a pyriform kind of figure, having its broader part in the ſcrotum, and its narrow one, or neck, in the groin.

In infants, in very young ſubjects, and in recent caſes, this ſac, from its ſoft, thin ſtate, is capable of having its upper part, or neck, ſo compreſſed by means of a bandage, as either to procure an union of the ſides with each other, or at leaſt ſo to leſſen the diameter of its paſſage as to prevent the deſcent of any thing into it from the belly: this produces what is commonly called a perfect cure.

In thoſe of mature age, or whoſe ruptures are of ſome ſtanding, the entrance into the ſac is generally large, in proportion to the ſize and age of the patient, and thicker and firmer than in the former ſtate, for reaſons juſt given; in theſe, therefore, the cloſing or compreſſion of its neck, enough to hinder the falling down of any thing from the abdomen, is more difficult to accompliſh, and more unlikely to ſucceed. In very ancient people, or very old ruptures, ſucceſs is ſtill more improbable, for the ſame reaſons.

A bandage therefore, or truſs, though it is the only remedy, at all ages, and in all ſtates, of reducible ruptures, yet acts in a different manner, and is capable of producing very different effects, according to the circumſtances of the caſes in which it is applied: in very young perſons, a radical cure is frequently the conſequence; in the middle-aged it often gives the tendon and mouth of the ſac ſuch opportunity of being contracted, as to produce nearly the ſame event; but as it only ſerves by the mere preſſure of the pad to keep the parts in their proper place, in very old people it can hardly ever be laid aſide, without hazard of a new deſcent, which, while it is worn properly, it will almoſt always prevent.

From the foregoing ſhort account, the following facts may, I think, be collected.

1. That the principal circumſtances attending a rupture muſt be ſubject to great variety, according to the age and conſtitution of the patient, the date of the diſeaſe, &c. and conſequently that the preciſe

ciſe caſe, and age, in which a radical or perfect cure is obtainable or not, is not eaſy to be determined, though a judicious man will moſt commonly know when it is very improbable.

2. That recent ruptures, if immediately and properly taken care of, are capable of a perfect cure at almoſt any age.

3. That though the thickneſs of the hernial ſac, and the largeneſs of the abdominal aperture, are generally mentioned as the two cauſes why old ruptures do not admit of a cure, yet in fact the latter is only a conſequence of the former.

4. That all external applications in the attempt toward the cure of a rupture, muſt, if they are uſed with any deſign at all, be intended either to conſtringe the aperture through which the parts have deſcended, or to leſſen or contract the diameter of the neck of the hernial ſac.

5. That the conſtruction of the tendinous aperture (ſuppoſing ſuch medicines could penetrate to it) is impoſſible, while it continues dilated, by an old, thick, tough hernial ſac, which ſac, from the conneſtions it always has with the cellular membrane of the ſpermatic chord, can never be returned into the belly; and therefore,

6. That ſuch medicines can be ſerviceable no other way than by rendering that ſac again thin, fine, and compreſſible; which, from the nature of things, and from all experience, is abſolutely impracticable.

SECT. II.

THE different treatment which ruptures may require, being dependant on different circumſtances attending the diſeaſe, I ſhall for the better information of the inexperienced reader divide them into four claſſes; under which, I think, may be comprehended not only all the kinds of hernias, but every particularity alſo with which they may happen to be diſtinguiſhed.

1. Under the firſt, I reckon thoſe which are capable of eaſy and immediate reduction, and are not attended by any troubleſome or bad ſymptoms.

2. Under the ſecond, thoſe which have been ſo long down, that the contained parts are either ſo altered in form, or have contracted ſuch adheſions and connections, as to be abſolutely incapable of being reduced at all.

3. Under the third, I comprehend thoſe in which ſuch ſtricture has been made on the protruded parts, as to bring on pain, and produce ſuch an obſtruction in the inteſtinal canal, as to render immediate reduction neceſſary, but at the ſame time difficult.

4. And under the fourth, I ſhall place thoſe in which the return of the parts by the mere hand is abſolutely impracticable, and in which the patient's life can be ſaved only by a chirurgical operation.

The firſt is very frequently met with in infants, and ſometimes in adults, and is too often neglected in both. In the former, as the deſcent ſeldom happens but when the infant ſtrains to cry, and the gut is either eaſily put up, or returns, ſuâ ſponte, as ſoon as the child becomes quiet, it often is either totally unattended to, or an

attempt

attempt made to reſtrain it only by a bandage made of cloth or dimity, and which being ineffectual for ſuch purpoſe, lays the foundation of future trouble and miſchief.

This is in great meaſure owing to a common opinion, that a young infant cannot wear a ſteel truſs: a generally prevailing error, and which ought to be corrected. There is no age at which ſuch truſs may not be worn, or ought not to be applied; it is, when well made, and properly put on, not only perfectly ſafe and eaſy, but the only kind of bandage that can be depended upon; and as a radical cure depends greatly on the thinneſs of the hernial ſac, and its being capable of being ſo compreſſed as poſſibly to unite, and thereby intirely cloſe the paſſage from the belly, it muſt therefore appear to every one who will give himſelf the trouble of thinking on the ſubject, that the fewer times the parts have made a deſcent, and the ſmaller and finer the elongation of the peritoneum is, the greater the probability of ſuch cure muſt be.

The ſame method of acting muſt for the ſame reaſons be good in every age in which a radical cure may reaſonably be expected; that is, the prolapſed parts cannot be too ſoon returned, nor too carefully prevented from falling down again, every new deſcent rendering a cure both more diſtant and more uncertain.

As ſoon as the parts are returned, the truſs ſhould be immediately put on, and worn without remiſſion, care being taken, eſpecially if the patient be an infant, to keep the parts on which it preſſes conſtantly waſhed, to prevent galling.

It can hardly be neceſſary to ſay, that the ſurgeon ſhould be careful to ſee that the truſs fits, as his ſucceſs and reputation depend on ſuch care. A truſs which does not preſs enough is worſe than none at all, as it occaſions loſs of time, and deceives the patient or his friends; and one which preſſes too much, or on an improper part, gives

gives pain and trouble, by producing an inflammation and ſwelling of the ſpermatic chord, and ſometimes of the teſticle.

In adults, whoſe ruptures are of long ſtanding, and accuſtomed to frequent deſcent, the hernial ſac is generally firm and thick, and the aperture in the tendon of the abdominal muſcle large; the freedom and eaſe with which the parts return into the belly, when the patient is in a ſupine poſture, and the little pain which attends a rupture of this kind, often render the perſons who labour under it careleſs: but all ſuch ſhould be informed, that they are in conſtant danger of ſuch alteration in their complaint, as may put them into great hazard, and perhaps deſtroy them. The paſſage from the belly being open, the quantity of inteſtine in the hernial ſac is always liable to be increaſed, and when down, to be bound by a ſtricture. An inflammation of that portion of the gut which is down, or ſuch obſtruction in it as may diſtend and enlarge it, may at all times produce ſuch complaints as may put the life of the patient into imminent danger; and therefore, notwithſtanding this kind of hernia may have been borne for a great length of time, without having proved either troubleſome or hazardous, yet as it is always poſſible to become ſo, and that very ſuddenly, it can never be prudent or ſafe to neglect it.

Even though the rupture ſhould be of the omental kind, (which conſidered abſtractedly is not ſubject to that degree or kind of danger to which the inteſtinal is liable) yet it may be ſecondarily, or by accident, the cauſe of all the ſame miſchief; for while it keeps the mouth of the hernial ſac open, it renders the deſcent of a piece of inteſtine always poſſible, and conſequently always likely to produce the miſchief which may proceed from thence.

They who labour under a hernia thus circumſtanced, that is, whoſe ruptures have been generally down while they have been in an erect poſture, and which have either gone up of themſelves, or have been eaſily

eaſily put up in a ſupine one, ſhould be particularly careful to have their truſs well made, and properly fitted; for the mouth of the ſac, and the opening in the tendon being both large and lax, and the parts having been uſed to deſcend through them, if the pad of the truſs be not placed right, and there be not a due degree of elaſticity in the ſpring, a piece of inteſtine will, in ſome poſture, ſlip down behind it, and render the truſs productive of that very kind of miſchief which it ought to prevent.

It is ſcarcely credible how very ſmall an opening will ſerve for a portion of gut or caul to inſinuate themſelves into at ſome times. Now, though in perſons of mature age it moſt frequently proves impracticable ſo to compreſs the mouth of the hernial ſac, as abſolutely to cloſe it, yet by the conſtant uſe of a well-made truſs, it may be ſo leſſened, as to render the deſcent of a piece of inteſtine into it much more difficult: from whence we may learn the great conſequence of having the part completely reduced before the truſs is applied, and the danger that may be incurred by laying ſuch bandage aſide after it has been worn ſome time; ſince the ſame alteration which renders the deſcent of the gut leſs eaſy, will alſo make the reduction more difficult, if a piece ſhould happen to get down: and hence alſo we may learn why the bandage ſhould be long and unremittingly worn by all thoſe whoſe time of life makes the expectations of a perfect cure reaſonable, many of the ruptures of adults being owing to the negligent manner in which children at ſchool are ſuffered to wear their truſſes.

I know a gentleman who has for ſome years had an omental rupture, which was neglected while he was young, and he having naturally a lax habit, and the abdominal opening being much dilated, he finds it extremely difficult to keep it up, even with the beſt truſs he can get, behind which it will ſometimes ſlip down; when this happens, it gives

gives him ſuch immediate and acute pain at his ſtomach, and makes him ſo intolerably ſick, that he is obliged immediately to throw himſelf on his back, and procure the return of the piece of omentum.

SECT. III.

IN the ſecond claſs I ranked thoſe caſes in which the parts conſtituting the hernia are found irreducible, but not in a ſtate of inflammation, nor producing any troubleſome or dangerous kind of ſymptoms.

This incapacity of reduction may be owing to ſeveral cauſes, but moſt frequently ariſes either from the largeneſs of the quantity of the contents, from an alteration made in their form and texture, or from connections and adheſions which they have contracted with each other, or with their containing bag.

I have already mentioned it as my opinion, that ruptures are ſometimes rendered difficult to be reduced by that portion of the inteſtinal canal which is called the cœcum, or the beginning of the colon, being contained in the hernial ſac. Of which fact I am as much convinced as the nature of ſuch kind of things will permit; that is, by obſervations made both on the living and the dead.

When a hernia of this kind (viz. one containing ſuch a part of the inteſtinal tube) has been long neglected, and ſuffered to remain in the ſcrotum without any bandage at all to ſupport its weight, the hernial ſac being conſtantly dragged down, and kept in a ſtate of diſtention, neceſſarily becomes thick, hard, and tough; by this means the diameter of its neck is leſſened, and the return of the inteſtine back from the ſcrotum into the belly rendered more and more difficult, as the parts through which it is to paſs become harder, and leſs capable

of

of yielding. This will, indeed, in time prove an obſtruction ſufficient to hinder any part of the inteſtine, or even of the omentum, from being returned; but the more the difficulty is, which proceeds from the mere figure and ſize of the portion of gut, the greater will be the obſtruction when added to that ariſing from the juſt mentioned cauſe.

An alteration produced by time, and conſtant, though gentle, preſſure in the form and conſiſtence, or texture of the omentum, is alſo no infrequent cauſe, why neglected omental ruptures become irreducible.

The cellular membrane in all parts of the body, however looſe and light its natural texture may be, is capable of becoming hard, firm, and compact, by conſtant preſſure. Of this there are ſo many, and ſo well known inſtances, that it is quite unneceſſary to produce any.

The omentum, from its texture, is liable to the ſame conſequence. When a portion of it has been ſuffered to remain for a great length of time in the ſcrotum, without having ever been returned into the belly, it often happens that although that part of it which is in the lower part of the hernial ſac preſerves its natural ſoft, adipoſe, expanſile ſtate, yet all that part which paſſes through what is called the neck of the ſac is, by conſtant preſſure, formed into a hard, firm, incompreſſible, carnous kind of body, incapable of being expanded, and taking the form of the paſſage in which it is confined, exactly filling that paſſage, and rendering it impoſſible to puſh up the looſe part which fills the ſcrotum.

This is no theoretic opinion, but a fact, which I have ſeen and proved often; and whoever will reflect on it, will immediately find in it one inſuperable objection to the return of ſome old omental ruptures.

The ſame reaſon for incapacity of reduction is alſo ſometimes met with in ruptures of the inteſtinal kind, from an alteration produced on

that part of the meſentery which has been ſuffered to lie quiet for a great length of time in the neck of an old hernial ſac.

The other impediment, which I mentioned, to the return of old ruptures, is connection and adheſion of the parts, either with each other, or with the bag containing them. This is common to both the inteſtinal and omental hernia, and is produced by ſlight inflammations of the parts, which have been permitted to lie long in contact with each other, or perhaps in many caſes from the mere contact only. Theſe adheſions are more or leſs firm in different caſes, but even the ſlighteſt will almoſt always be found an invincible objection to the reduction of the adherent parts, by the hand only.

Many, or perhaps moſt of theſe irreducible ruptures become ſo by mere time and neglect, and might at firſt have been returned; but when they are got into this ſtate, they are capable of no relief from ſurgery but the application of a ſuſpenſory bag, to take off or leſſen the * inconvenience ariſing from the weight of the ſcrotum.

People in this ſituation ſhould be particularly careful not to make any attempts beyond their ſtrength, nor aim at feats of agility; they ſhould take care to ſuſpend the loaded ſcrotum, and to keep it out of the way of all harm from preſſure, bruiſe, &c. When the tumor is very large, a ſoft quilted bolſter ſhould be worn at the bottom of the ſuſpenſory to prevent excoriation, and the ſcrotum ſhould be frequently waſhed for the ſame reaſon; a loſs of ſkin in this part, and in ſuch circumſtances,

* I am not unaware that moſt of theſe are capable of being cured by the operation for the bubonocele, as it is called; but as I ſhould never think of propoſing it in any caſe in which there are not ſymptoms that threaten the life of the patient, ſo I have not mentioned it in this place as a means of cure. I alſo am not unappriſed what influence a ſucceſsful operation or two of this ſort has had on the unknowing; but I alſo know, that ſuch accidental ſucceſſes have emboldened the ſame operators to commit more than one or two murders, in ſimilar caſes; and that, from the prevalence of faſhion, ſome of theſe rupture-doctors have been largely rewarded, when they ought to have been hanged.

circumſtances, being ſometimes of the utmoſt importance. They ought alſo to be particularly attentive to the office of the inteſtinal canal, to ſee that they do not by any irregularity of diet diſorder it, and keep themſelves from being coſtive, for reaſons too obvious to need relating. By theſe means, and with theſe cautions, many people have paſſed their lives for many years free from diſeaſe, or complaint, with very large irreducible ruptures.

On the other hand, it is fit that mankind ſhould be appriſed that the quiet, inoffenſive ſtate of this kind of hernia is by no means to be depended upon; many things may happen to it, by which it may be ſo altered, as to become hazardous, and even fatal: an inflammation of that part of the gut which is down, any obſtruction to the paſſage of the aliment or fæces through it, a ſtricture made by the abdominal tendon, either on what has been long down, or on a new portion which may at any time be added to it, are always capable of ſo altering the ſtate of the caſe, as to put the life of the patient into danger.

Indeed the hazard ariſing from a ſtricture made on a piece of inteſtine contained in the ſac of an old irreducible hernia, is in one reſpect greater than that attending one that has been found at times reducible; ſince from the nature of the caſe it will hardly admit of any attempt toward relief, but the operation, and that in theſe circumſtances muſt neceſſarily be accompanied with additional difficulty.*

* I was ſome time ago deſired to be preſent at the opening of the dead body of a man who had for many years laboured under a large irreducible hernia, but which had never given him any other trouble than what proceeded from its weight, and who died very old: my then ſtate of health would not permit me to go, but I deſired leave to ſend a very ingenious young gentleman, Mr. Price, who was then my pupil at St. Bartholomew's, and is now ſettled in Wales. The following is the account he gave me:

"The hernia was of fourteen years ſtanding, during which time no attempt had ever "been made for its reduction; it was on the right ſide, and diſtended the ſcrotum to ſuch

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Among the ruptures which have been thought not reducible, and treated as ſuch, there have been ſome which, upon more judicious and more patient attempts, have been found capable of reduction.

When this is ſuſpected to be the caſe, the proper method is by abſolute reſt, in a ſupine poſture, for a conſiderable length of time, by great abſtinence, and the uſe of evacuants, ſo to leſſen the ſize of the parts in the hernial ſac as to render them capable of paſſing back again into the belly.

This method has now and then ſucceeded, and in ſome caſes is worth the trying; but previous to the attempt, there ſhould be ſome circumſtance which makes ſucceſs probable; and there ſhould alſo be good reaſon to believe, that the habit and age of the patient will bear the neceſſary confinement and evacuation; otherwiſe, even though he ſhould get rid of his rupture, he may be much worſted by the expe-riment.*

If ſuch attempt ſucceeds, a truſs ſhould be immediately put on, and worn conſtantly, without remiſſion; for, in theſe people, the large-

" a ſize, that it meaſured, from the opening in the abdominal muſcle, to the bottom " of the tumor, fourteen inches and a half, and round the tumor twenty-two inches; " the ring, as it is called, was very large, and had no appearance of ſtricture; the ſac " was not ſo thick as might have been expected, and contained no water; the jejunum, " ileum, the ſac of the colon, called the cœcum, with its appendicula vermiformis, " together with a large portion of omentum, were the contents; the duodenum was ſo " diſplaced by the weight of the reſt of the guts within the ſac, that its direction " from the pylorus was perpendicular; the caul adhered to the hernial ſac in ſeveral " places, the inteſtine in none; the teſticle, included in its tunica vaginalis, was much " waſted; the ſpermatic artery and vein ran down behind the hernial ſac, but the vas " deferens ran up on the inner and left ſide of it, at a great diſtance from them, thro' " the whole of its courſe, but nevertheleſs would not have been in the way of the " operation had it been neceſſary."

* Hildanus gives an account of a man radically cured by ſix months confinement to-ed, in the caſe of a rupture of twenty years date.

largeneſs of the abdominal aperture, the thickneſs of the hernial ſac, and the relaxation of the meſentery, make a new deſcent always to be apprehended and guarded againſt.

An omental rupture, which has been ſo long in the ſcrotum as to have become irreducible, is very ſeldom attended † with any bad ſymptoms, conſidered abſtractedly: but, as I have already ſaid, it is conſtantly capable of being the occaſion of an inteſtinal hernia, and all its conſequences; neither is that all, for the omentum, either ſo altered in form and texture, or ſo connected as to be incapable of reduction, may by accident inflame, and either become gangrenous or ſuppurate, and be the occaſion of a great deal of trouble. Of this I have ſeen two or three inſtances, one of which I will relate.

I was deſired to ſee a gentleman, from whoſe ſcrotum near a pint of brown, ſanious, fœtid fluid had been diſcharged two or three days before. The account he gave of himſelf was as follows; That he had been from his youth ſubject to the deſcent of a ſoft, flabby body into the ſcrotum, when he was in an erect poſture, but which for many years he could put up when he pleaſed, and which always went up when he lay down; that having no trouble from it, and being naturally ſhy and baſhful, he had done nothing to it, nor ever ſhewed it to any one; that from the ſudden ſpring of an unruly horſe, he had ſtruck it with great violence againſt the pummel of his ſaddle, which had given him immediate pain; that the next day it ſwelled ſtill more, and became more painful, but that being afraid, or aſhamed, he ſtill concealed it, and only anointed it with ſomething greaſy, till at laſt he could bear it no longer: the perſon to whom he ſhewed it took it for a hydrocele, tapped it, and let out the fluid juſt mentioned; and on the fifth or ſixth day from this operation I ſaw it.

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† Garengeot relates the caſe of an epiplocele producing very bad ſymptoms; and ſo does Dionis.

The whole ſcrotum was much inflamed, and the orifice made by the trocar foul and ſloughy: he had a degree of heat and fever upon him, which forbad any operation at that time; and therefore I deſired that he might be dreſſed ſoft and eaſy, have an emollient cataplaſm applied to the whole ſcrotum, loſe ſome blood, and have a glyſter.

By proper care the tumor ſubſided, his fever left him, and the ſlough caſting off largely brought the putrid omentum within view; upon ſight of which I, which I would have laid the whole open, but was not permitted. I enlarged the orifice a little, and in ſo doing cut through an old hernial ſac, which was very thick and hard; what part of the omentum was looſe I brought away with a pair of forceps; but the ſeparation of the whole took up much time, and the hard hernial ſac cauſed ſo many abſceſſes, and occaſioned ſo large a diſcharge, that being a valetudinarian, he had certainly ſunk under it, had it not been for the free uſe of the bark.

If, inſtead of this method of treating it, I had been permitted to have laid it open through the whole of its length, removed the rotten omentum, and cut off ſome part of the ſides of the hernial ſac, the cure would have been ſhortened, and the ſcrotum would have been left in a much better ſtate.

That an omental rupture, which has ſo long reſiſted all attempts for reduction, as to create a belief of its being abſolutely irreducible, may now and then, by long reſt and abſtinence, become capable of being returned, I am under no doubt, for reaſons which have already been mentioned: and not long ago, I had myſelf a patient in St. Bartholomew's hoſpital, who underwent the operation for the radical cure of a hydrocele, who had alſo an omental hernia, which I and ſome others had often tried ineffectually to reduce: this, during the time of his confinement to bed after the operation, went up of its own accord, and was ever afterwards kept there by a truſs.

It

It ſometimes happens in old compound ruptures, that the piece of inteſtine is reducible, and that of the omentum is not; in which caſe we are told, that the portion of inteſtine ſhould be kept up by a truſs, whoſe pad may be ſo made, as not to preſs on the omentum while it reſtrains the inteſtine.

I will not deny that this may now and then be practicable, but it is not often ſo, and it ought to be particularly attended to, and very carefully watched, leſt a ſmall piece of gut ſlip down, and being preſſed on by the truſs produce fatal miſchief.

I have ſeen an omental rupture, in which the piece included in the ſac had the knotty hardneſs, the pain, and every other ſymptom of a cancer.

SECT. IV.

UNDER the third diviſion I reckon thoſe ruptures which are reducible, but whoſe reduction is difficult, and which are attended with pain and trouble and hazard.

Difficulty of reduction may be owing to ſeveral cauſes. The ſize of the piece of omentum, or the inflamed ſtate of it; the quantity of inteſtine and meſentery, an inflammation of the gut or its diſtention by fæces or wind; or the ſmalneſs of the aperture of the tendon through which the hernia paſſes. But to whatever cauſe it be owing, if the prolapſed body cannot be immediately replaced, and the patient ſuffers pain, or is prevented thereby from going to ſtool, it is called an incarcerated hernia, a ſtrangulated hernia, or a hernia with ſtricture.

The ſymptoms are, a ſwelling in the groin or ſcrotum reſiſting the impreſſion of the fingers: if the hernia be of the inteſtinal kind, it is generally

generally painful to the touch, and the pain is increaſed by coughing, ſneezing, or ſtanding upright. Theſe are the very firſt ſymptoms, and if they are not relieved, are ſoon followed by others, viz. a ſickneſs at the ſtomach, a frequent reaching or inclination to vomit, a ſtoppage of all diſcharge per anum, attended with a frequent, hard pulſe, and ſome degree of fever.

A patient in theſe circumſtances may be looked upon as in ſome danger, and requiring immediate aſſiſtance. A ſtricture made on the prolapſed part of the gut, by the borders of the natural aperture in the tendon of the oblique muſcle, is the immediate cauſe of theſe ſymptoms, which nothing can appeaſe or remove, except what will take off that ſtricture. This can be accompliſhed only by removing the part ſo bound from the tendinous opening; that is, by returning it back into the belly, whence it came; or by dividing a part of the tendon itſelf: the former of theſe, when it can be practiſed, is always moſt eligible, and makes our preſent ſubject.

I have already obſerved, that a portion of inteſtine, while it is neither bound by any degree of ſtricture, nor affected by inflammation, will remain quiet in a hernial ſac in the ſcrotum, and perform its proper office freely and perfectly; but the inſtant either of the abovementioned accidents (particularly the former) happens, the caſe is altered; the paſſage both of the aliment and fæces is ſtopped or interrupted; the periſtaltic motion of the whole canal is diſturbed or perverted; and the circulation of the blood, through the ſtraitened portion of inteſtine, is ſo impeded, that if the obſtruction be not removed in time, a mortification muſt follow.

Every ſymptom which attends an incarcerated rupture depends on this cauſe, and is juſtly accountable for from it. The tumor, the pain, the tenſion of the belly, the nauſea, the vomiting, and the ſuppreſ-

ſuppreſſion of ſtools, are ſo many effects produced by it, and removeable only by removing it.

My preſent conſideration being thoſe ruptures which are capable of being returned, I am now to ſpeak of the manner of attempting ſuch reduction.

The patient ſhould be laid in a ſupine poſture, with his trunk certainly as low, if not lower than his thighs; the thigh on the diſeaſed ſide ſhould be ſo elevated, as to contribute as much as poſſible to the relaxation of the abdominal aperture, and then the ſurgeon, graſping the lower part of the tumor gently with his hand in ſuch a manner as to keep the teſticle from aſcending, and the inteſtine from deſcending, muſt endeavour to procure the return of the latter through the ring, as it is vulgarly called, by gentle continued preſſure toward that opening. If the caſe be a bubonocele, there will be no occaſion for endeavouring to graſp the tumor, but by continued, moderate preſſure on it with the fingers, to endeavour the return of the piece of gut.

This may ſerve for a general deſcription of the method of performing this operation; but the exact manner of executing it is one of thoſe manœuvres which can be learnt only by obſervation and practice, and of which no verbal deſcription can convey an adequate and perfect idea; knowledge of the ſtructure, and ſituation of the parts, will inſtruct any one how to go about it, and a little practice will ſoon make him adroit.

The poſture of the body, and the diſpoſition of the lower limbs, may be made very aſſiſtant in this operation, when the difficulty is conſiderable; the nearer the poſture approaches to what is commonly called ſtanding on the head, the better, as it cauſes the whole packet of ſmall inteſtines to hang, as it were, by the ſtrangulated portion, and may thereby diſengage it. A little time and pains ſpent in this

manner will frequently be attended with ſucceſs, and obtain a return of the part; but if it ſhould not, and the handling of it (which, I muſt repeat, ſhould always be gentle) becomes painful, and very fatiguing to the patient, we are adviſed to deſiſt a few hours, and try the effect of other means.

Theſe means are phlebotomy, glyſters, cathartics, the application of cataplaſms, fomentations, embrocations, &c.

Children, eſpecially very young ones, bear the loſs of blood very ill, and are very apt to ſwoon, if the quantity be at all conſiderable: if therefore ſuch accident happens, the ſurgeon ſhould embrace the opportunity which ſuch general relaxation will afford him of reducing the rupture, eſpecially as it gives him another advantage by preventing the child from crying, and making reſiſtance.

Perhaps there is no diſeaſe affecting the human body in which bleeding is found more eminently and immediately ſerviceable than in this, and which therefore, if there are no particular circumſtances in the conſtitution prohibiting it, ought never to be omitted; but, on the contrary, ſhould be freely and largely repeated, if it appears at all neceſſary.

A ſemicupium, or warm bath, will, by the general relaxation which it neceſſarily produces, be found frequently ſerviceable.

The uſe of warm fomentations, ſoft cataplaſms, and relaxing oily embrocations, are alſo adviſed with a view to relax the tendon of the abdominal muſcle, and to render the return of the parts contained in the hernial ſac eaſy; but I am afraid that ſuch kind of applications have in general been the occaſion of much more miſchief than good. The effect of them can hardly reach beyond the ſkin and membrana cellularis, and may poſſibly, by relaxing them, take off ſome ſmall part of the pain which ariſes from their diſtention, but will ſeldom have any effect on the immediate ſeat of the diſeaſe, the tendon of the

oblique

oblique muſcle; the enlargement or relaxation of which only can be of material ſervice.

I know that in this I differ from the majority both of writers and practitioners, but having (as I think) truth on my ſide, I do again venture to ſay, that I verily believe, that the confidence which has been placed in ſuch kind of applications has deſtroyed many more lives than it has ſaved. A hernia, with painful ſtricture, and ſtoppage of ſtools, is one of thoſe caſes, in which we can ſeldom ſtand ſtill, even for a ſhort ſpace of time; if we do not get forward, we generally go backward; and whatever does no good, if it be at all depended upon, certainly does harm, by occaſioning an irretrievable loſs of time: of this kind I take the cataplaſm and embrocation* to be; while the former is applied, or the latter uſed, no other more powerful means are made uſe of; and though it has the appearance of doing ſomething, yet I fear it is little more than ſpecious trifling; eſpecially if the caſe be at all preſſing.

Very different have been the opinions of different people concerning the uſe of cathartic medicines; ſome adviſing them ſtrenuouſly, others making no dependance on them at all. As different alſo have been the opinions of thoſe who do adviſe them, with regard to the kind of medicine proper on this occaſion; ſome preſcribing thoſe of the lenient kind, ſuch as Glauber's ſalt, infuſum ſenæ, &c. others the more powerful or ponderous kind of remedies, ſuch as Extract. Cathart. Jallap. Mercurius dulcis †, &c.

* In a very pompous modern book may be ſeen an operoſe, expenſive proceſs, for making an ointment, of a ſolution of gold, pearl, &c. to be uſed for aſſiſting the reduction of ſtrangulated inteſtines, and which, when properly made, may poſſibly be as uſeful as pomatum, ointment of elder, or any other greaſy application.

† The ingenious and learned Dr. Monro of Edinburgh, ſays, that he has more than once reduced a rupture of this kind by a ſmart doſe of jallap and mercurius dulcis, when other

I believe I may venture to ſay that I have tried them all, but I cannot ſay that I have ſuch faith in any of them as to think very highly of them. With regard to the former, viz. the lenient ſort of purges, it is not often that a patient in theſe circumſtances can keep them upon his ſtomach; and even when they are not rejected by vomit, they very ſeldom have force ſufficient to anſwer the end propoſed. The more ſtimulating ones are certainly better calculated to excite the periſtaltic motion of the inteſtines (the one thing to be aimed at), and thereby free the confined piece; but, on the other hand, if they do not ſucceed, they add to the fulneſs and tenſion of the belly, as well as to the heat and thirſt.

I would by no means be underſtood to mean that I am abſolutely againſt the uſe of cathartic medicines; I only mean to ſignify, that I have no great dependance on them, and that I think perſiſting in the ineffectual uſe of them often adds unneceſſarily to the ſuffering of the patient.

But though I cannot ſay that I have ſeen frequent benefit from the exhibition of cathartics by the mouth, yet I have often experienced the good ariſing from acrid, ſtimulating glyſters, and ſuppoſitories frequently repeated; particularly from the ſmoke of tobacco *, and from a compoſition of ſalt, honey, and aloes, boiled to the proper conſiſtence of a ſuppoſitory. By theſe I have ſeen very alarming ruptures returned, when they have been thought capable of being relieved by nothing but the chirurgical operation.

There

other methods have failed. The ſame gentleman ſays, he has ſeen the external application of cold claret, or ſnow, inſtead of a warm pultice, uſed with good ſucceſs.

* I cannot help thinking that the preſent machine, which is uſed for the tobacco glyſter, might be conſiderably improved, that is, might be made to throw in the fume in much greater quantity, and with more certainty. A pump is now made for this purpoſe, which I have uſed very ſucceſsfully.

There is another method of endeavouring to obtain relief in this caſe, which has been propoſed by few, and I hope practiſed by fewer (though I have ſeen two patients upon whom it had been tried, and who were both deſtroyed by it). It is the making ſeveral punctures with a round needle through the tumid ſcrotum into the gut, in order (as it is ſaid) to let out the air which is ſuppoſed to diſtend the latter, and prevent its return; if this practice was worth a ſerious refutation, many arguments, drawn from the nature both of the parts and of the diſeaſe, might be produced againſt it; but it is really too abſurd to waſte either my own or the reader's time about it.

There is no circumſtance attending ruptures with ſtricture, in which more variety is found, than in the time which they will ſafely admit to be ſpent in their reduction; ſome have been ſucceſsfully replaced at the end of eight or ten days, others have proved fatal in one. This difference may proceed from difference of conſtitution and habit, or from ſome particular circumſtance in the diſeaſe itſelf; but let the cauſe of it be what it may, as it never can be abſolutely foreſeen, it ſhould never be truſted: the ſooner a rupture is reduced, the ſooner the patient is out of danger from the ſtricture, and the ſooner will he be rid of thoſe ſymptoms, which it has already occaſioned.

Recent hernias are in general more liable to ſtricture than old ones, for reaſons which are obvious from what has already been ſaid; but when old ones get into the ſame circumſtances, the ſymptoms are much the ſame; though I think in general they are not altogether ſo preſſing, and the latter generally admit of more time to attempt reduction in. The ſmaller the portion of inteſtine is which is engaged, the greater the pain is, and the more haſtily do the ſymptoms advance. I have ſeen a bubonocele in a young woman prove fatal in leſs than a day, which had never been down before, and in which the portion of inteſtine was ſo ſmall, as hardly to engage its whole canal.

Omental

Omental ruptures in general are not ſubject to bad ſymptoms ariſing from ſtricture, though they will ſometimes be painful, and troubleſome, from the connection of the caul with the viſcera, as I have often ſeen. As this is an accident which they are all liable to, they ſhould never be ſuffered to remain down, if they are reducible; and that not only on this account, but alſo becauſe they render the patient always liable to the deſcent of a piece of gut. In general they are more eaſy of reduction than the inteſtinal, and being not painful will admit of more free handling, as well as more time to be ſpent in the attempt *.

I have already mentioned the reaſons why an omental rupture is ſometimes incapable of being reduced, viz. adheſion to the ſides of the hernial ſac, or ſuch an alteration in the form of it, as makes it impoſſible for it to paſs through the abdominal aperture. When this is truly the caſe, as is moſt reaſonable to ſuppoſe when it reſiſts all proper attempts, there is no remedy but to ſuſpend the weight of it in a bag-truſs, and thereby render it as little troubleſome as poſſible. This is indeed all that can be done when the rupture is abſolutely irreducible; but in books will be found direction to leave an old omental hernia down, and ſuſpend it in a bag, even though it ſhould be reducible, rather than return it into the belly, leſt it ſhould lie there in a lump, and make the patient uneaſy. This is one of thoſe maxims which writers receive from each other, and deliver down to poſterity, without enquiring into their propriety. It may in ſome few particular caſes be right to do ſo, but cannot be admitted as a general rule: ſurely it muſt always be worth while to try how it will be when it is up, rather than be content with a method, which is hardly palliative, and which always may be productive of new evil. When

* Writers of good credit have given accounts of the worſt ſymptoms from a mere epiplocele; in Dionis may be ſeen a caſe of this kind, in Garengeot, and others.

When the parts are fairly reduced, the next conſideration is, how to keep them from falling down again: this can only be done by a bandage, the pad of which muſt make a conſtant preſſure againſt the opening in the abdominal tendon, and thereby not only keep the gut, or caul, from puſhing out, but make the ſides of the hernial ſac approach each other as near as poſſible.

In the making and adjuſting this kind of bandage, ſome ingenuity is neceſſary: if it be not ſo made, and ſo put on, as to do good, it will do harm; if it does not keep the inteſtine up, the patient is much more liable to miſchief with it than without it; and it has often, by preſſing on the rupture while down, proved very pernicious, in caſes where there has been no degree of ſtricture from the tendon. It therefore behoves every ſurgeon to ſee that the truſs which he orders is well made, and properly applied, leſt all his pains ſhould be baffled by the bad make, or injudicious application of this piece of machinery.

If the ſymptoms of pain, inflammation, &c. ran high before the parts were reduced, they will not always ceaſe immediately after; and as the ſymptoms which remain after the gut is returned, do in all probability proceed from its having been inflamed by the ſtricture, ſuch remedies as are proper in that caſe ought to be made uſe of; the body ſhould be kept open, and the diet and regimen ſhould be low and ſparing, while the leaſt degree of tenſion or pain remain; in ſhort, till all complaint is abſolutely removed from the abdomen, and the inteſtines do their office freely, and without trouble.

SECT. VI.

I AM now come to the fourth diviſion, under which I comprehended all thoſe ruptures, which are in ſuch a ſtate as to be irreducible by the mere hand, and in which a chirurgical operation is neceſſary for the preſervation of the life of the patient.

Impracticability of reduction may be owing to many cauſes, moſt of which have already been recited; ſuch are, alteration of the form of the parts contained in the hernial ſac, largeneſs of their quantity, adheſions either to the ſac, or to each other, or both, and a ſtricture made on the inteſtine, by the borders of the aperture in the abdominal tendon: theſe are each of them cauſes why ruptures are ſometimes incapable of being returned back into the belly, and will require our conſideration in their proper places; but in this it is my intention to ſpeak only of the laſt, it being that which calls moſt immediately for relief, and which moſt frequently requires the ſurgeon's knife.

Whether the primary and original cauſe of the miſchief ariſing from this ſtricture, is in the contained, or the containing parts of a rupture, I will not now ſtay to inquire; nor whether the ſtricture made by the tendon be a cauſe, or an effect; but ſhall conſider the inteſtine as ſo engaged in it, as to be rendered incapable of being returned into the cavity of the belly (by the hand only), and ſuffering in ſuch manner, by being ſo bound, as to produce a ſeries of bad ſymptoms, and at laſt, (if not relieved) death.

This ſtricture, which according to its different degrees renders the reduction of an inteſtinal hernia either difficult or impoſſible, is according to ſuch degrees productive of what are called the ſymptoms of

of a ſtrangulated rupture, and which are more or leſs preſſing, as they more or leſs intereſt the life of the patient.

The earlieſt of theſe ſymptoms were related in the former ſection, as attendant on thoſe ruptures which were reducible, though with difficulty, viz. tumor in the groin, or ſcrotum, attended with pain, not only in the part, but all over the belly, and creating a ſickneſs and inclination to vomit, ſuppreſſion of ſtools, and ſome degree of fever: theſe are the firſt ſymptoms, and if they are not appeaſed by the return of the inteſtine, that is, if the attempts made for this purpoſe do not ſucceed, they are ſoon exaſperated; the ſickneſs becomes more troubleſome, the vomiting more frequent, the pain more intenſe, the tenſion of the belly greater, the fever higher, and a general reſtleſſneſs comes on, which is very terrible to bear. When this is the ſtate of the patient, no time is to be loſt, a very little delay is now of the utmoſt conſequence, and if the one ſingle remedy which the diſeaſe is now capable of be not adminiſtered immediately, it will generally baffle every other attempt. This remedy is the operation, whereby the parts engaged in the ſtricture may be ſet free. If this be not now performed, the vomiting is ſoon exchanged for a convulſive hiccough, and a frequent gulping up of bilious matter; the tenſion of the belly, the reſtleſſneſs, and fever, having been conſiderably increaſed for a few hours, the patient ſuddenly becomes perfectly eaſy, the belly ſubſides, the pulſe from having been hard, full, and frequent, becomes low, languid, and generally interrupted; and the ſkin, eſpecially that of the limbs, cold and moiſt; the eyes have now a languor and a glaſſineſs, a lack-luſtre not eaſy to be deſcribed; the tumor of the part diſappears, and the ſkin covering it ſometimes changes its natural colour for a livid hue; but whether it keeps or loſes its colour, it has an emphyſematous feel, a crepitus to the touch, which will eaſily be conceived by all who have attended to it, but is

not ſo eaſy to convey an idea of by words: this crepitus is the too ſure indicator of gangrenous miſchief within. In this ſtate, the gut either goes up ſpontaneouſly, or is returned with the ſmalleſt degree of preſſure, a diſcharge is made by ſtool, and the patient is generally much pleaſed at the eaſe he finds; but this pleaſure is of ſhort duration, for the hiccough and the cold ſweats continuing and increaſing, with the addition of ſpaſmodic rigors and ſubſultus tendinum, the tragedy ſoon finiſhes.

Theſe are the ſymptoms of an *incarcerated hernia*, this their general progreſs, and their too frequent event. The firſt claſs of them imply ſome degree of hazard, but are often capable of being relieved without the uſe of the knife; the latter frequently require it, and very often prove fatal by the neglect, or too late application of it.

Perhaps there is not in the practice of ſurgery a point which requires more judgment, firmneſs, or delicacy, than to determine the preciſe time, beyond which this operation ſhould not be deferred, and for a ſurgeon to conduct himſelf ſo as to induce a patient to ſubmit to it early enough for his preſervation. The time in which a piece of gut will become gangrenous from ſtricture, or get into a ſtate approaching to that of a gangrene, is extremely uncertain, and depends on circumſtances which no man can foreſee. There have been ſeveral inſtances of ruptures, attended by preſſing ſymptoms of ſtricture, which have been ſafely returned, by the hand only, at the end of ſeveral days; or the operation having been performed at the ſame diſtance of time, the parts have been found ſound and unhurt; on the other hand, there are many inſtances producible, of the inteſtine having been with great difficulty replaced, or of its returning, ſuâ ſponte, from being mortified, or (the operation having been ſubmitted to) of its having been found in ſuch ſtate by the operator, at the end of not many hours.

I have

I have myſelf ſeen a ſmall portion of the inteſtine become perfectly gangrenous, in one day and night from its firſt expulſion.

The directions which are given to us by writers, are not to be truſted without much circumſpection; the ſigns or marks which they in general regard as proofs of the proper time for operating, are moſt frequently proofs that that time is juſt elapſed, and that inſtead of waiting for the arrival of ſuch ſymptoms, we ſhould have prevented them. On the other hand, to propoſe an operation of ſo much conſequence, before it ſhall be thought abſolutely neceſſary, may admit of ſuch miſconſtruction, as no man would wiſh to have put upon his conduct. Indeed I do not know any ſituation, into which a judicious and prudent man can be put, in which it will behove him to be more wary and circumſpect, more delicate, or more ſteady.

The two principal circumſtances, which have moſt contributed to the infrequency of performing this operation, are, a dread of great hazard from the operation itſelf, conſidered abſtractedly, and a fear of bringing a diſgrace upon it, by having performed it too late, *ne occidiſſe, niſi ſervaſſet, videretur.** The firſt of theſe is vaſtly greater than it ought to be, and is moſt frequently the cauſe of the latter; ſo that if the one can juſtly be leſſened, the other will not be ſo likely to happen.

That the operation conſidered ſimply is not void of hazard, every man who knows any thing of the nature of wounds in membranous and tendinous parts, muſt acknowledge; they are certainly ſubject to fever and inflammation, are difficult and ſlow of digeſtion, and in ſome particular habits are apt to become gangrenous; but that they are neceſſarily, or even moſt frequently hazardous, daily and manifold experience contradicts.

One evil is very frequently the parent of others. By being afraid of incurring that degree of hazard which is thought to attend the

* Celſus.

operation merely, the generality of people neither attend to, nor embrace the moſt proper time for the ſafe performance of it; or that in which its danger muſt be neceſſarily leaſt, becauſe leaſt combined with that which may ariſe from the ſtate of the parts within; a ſtate even at firſt not abſolutely ſafe, but which all delay beyond a certain time muſt hourly increaſe the hazard of.

If I might preſume to give my opinion on this ſubject, I ſhould ſay, that the operation ought always to be performed as ſoon as poſſible after it appears that all rational attempts, by large and free bleeding, the warm bath, glyſters, &c. are found to be ineffectual, or that the ſymptoms rather increaſe than decreaſe, while ſuch means are made uſe of, and that the * handling neceſſary for reduction becomes more and more painful; for if it be delayed until the inflammation has attained a certain height, though the parts upon being laid open are not found quite gangrenous, that is no proof that the want of ſucceſs muſt be ſet to the account of the operation merely. That ſtate of inflammation,

* Perhaps I may be thought ſomewhat ſingular, but from what I have ſeen I am much inclined to believe, that when the parts are very painful to the touch, and the ſcrotum large, and much upon the ſtreſs, more harm is generally done, by the manual attempts for reduction, than good. In this ſtate, the great diſtention of the inteſtine renders it very incompreſſible, and very little likely to be returned through the tendinous aperture by mere force, (for ſuch it is, in whatever degree it be uſed) and either a briſk irritating purge, or a very ſtimulating glyſter, (particularly the tobacco-ſmoke) are more likely, by exciting the periſtaltic motion, to diſentangle it, than even the moſt judicious method of handling it. And in caſes, where ſuch remedies have been previouſly uſed, I verily believe the ſudden reduction of the piece of gut is often more owing to their effect than to that of the hand. But I muſt deſire that this may be rightly underſtood, and not miſtaken for a diſſuaſive againſt manual attempts for reduction; I only mean, that there is ſuch a ſtate of an incarcerated inteſtine, (which ſtate I have juſt deſcribed) in which, from its ſize, inflammation, diſtention, &c. compreſſion by the hand is very little likely to procure its return, and very likely, if it does not do ſo, to do conſiderable miſchief.

ſlammation, either of the inteſtine or of the hernial ſac, which is juſt not gangrenous, is no ſtate of ſafety, nor are we ſure that removing the ſtricture will at this time appeaſe the ſymptoms, or abate the hazard,---far from it; ſuch an alteration may have already been made in the inteſtine that a mortification will enſue, though it be ſet free and returned into the belly. A ligature need not be continued round any part of a living animal, until it becomes quite gangrenous, in order to produce its deſtruction. There is a certain point of time, in which the circulation is ſo prevented, that the ſame event will follow, though the ligature be then removed. It is indeed a nice and no very eaſy matter to find this preciſe time; but this difficulty and uncertainty are the ſtrongeſt reaſons for anticipating rather than waiting for it; for when in the preſent caſe ſuch time arrives, or is nearly arrived, the riſque of the operation becomes complicated with that ariſing from the diſeaſed ſtate of the parts within, and the chance of ſucceſs is thereby much leſſened.

A mortification of the inteſtine is not abſolutely, neceſſarily, and always fatal; but the inſtances of thoſe patients who have eſcaped with life in theſe circumſtances are ſo very few, that it may fairly be reckoned among the deadly diſeaſes. If the mortified gut returns back into the belly, upon the gangrene taking poſſeſſion of the part which was bound, it will moſt probably prove fatal; and though there have undoubtedly been inſtances of people who have ſurvived the operation, though it has been delayed till the parts have been in ſuch condition, yet they are ſo very rare, that they are hardly ſufficient to found a reaſonable expectation upon; and of the very few who have thus eſcaped, the majority have been obliged to hold life upon terms which have been very fatiguing and diſagreeable.

When the operation ſhall be thought neceſſary, the manner of performing it is as follows:

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The pubes, and groin, having been clean ſhaved, the patient muſt be laid on his back, on a table of convenient height, with his legs hanging eaſily over the end of it, then with a ſtrait diſſecting knife, an inciſion muſt be made through the ſkin and membrana adipoſa, beginning juſt above the place where the inteſtine paſſes out from the belly, and continuing it quite down to the lower part of the ſcrotum. Upon dividing the adipoſe membrane, there generally appear a few ſmall, diſtinct, tendinous kind of bands, which lie cloſe upon the hernial ſac, which muſt be divided alſo, as well as the ſac: the ſame knife with which the inciſion through the ſkin was made will execute this, which ſhould be done with a ſteady hand, and great caution, it being of very different degrees of thickneſs in different caſes; in the bubonocele, or that which is confined to the groin, the ſac is moſt frequently thin, conſequently more eaſily divided, and requires greater attention in the operator; in the oſcheocele, or ſcrotal hernia, if it be recent, the ſac is uſually thin alſo; if antient, it is ſometimes of conſiderable thickneſs; but whatever be the ſtate of it, if the operator has any doubt, let him, as ſoon as he has made a ſmall puncture in what appears to him to be the hernial ſac, endeavour to introduce a probe into it; this will give him the neceſſary ſatisfaction; for if he has not pierced the ſac, the probe will be ſtopped by the cells of the common membrane, and, if he has, it will paſs in without any obſtruction. The place to make the inciſion in the hernial ſac is about an inch and half below the ſtricture, and the opening need not be larger than juſt to admit the end of the operator's fore-finger, which, conſidering the great dilatability of theſe membranes, will be a very ſmall one; the fore-finger, introduced into this aperture, is the beſt of all directors, and upon that a narrow-bladed, curved knife, with a bold probe point, will be the only inſtrument neceſſary to finiſh the operation. With this knife on the finger, (the

point

point of the former being always ſhort of the extremity of the latter) the ſac muſt be divided quite up to the opening in the tendon, and down to the bottom of the ſcrotum.

Upon the firſt diviſion of the ſac, a fluid generally ruſhes out, which fluid is different in quantity, colour, and conſiſtence, according to the date, ſize, and ſome other circumſtances attending the rupture.

This fluid has ſometimes been mentioned as a defence againſt an accident from the knife, in the firſt diviſion of the hernial ſac, as if it kept the inteſtine at ſuch a diſtance, as thereby to leſſen the hazard of its being wounded; but this is a very fallacious circumſtance, and never to be truſted; the ſecurity of this operation depends intirely on a competent knowledge of the parts, a ſteady hand, and an attentive eye.

Different operators, eſpecially among the French, have propoſed a number of different inſtruments for the ſafe performance of this inciſion; the biſtouri cachée, the biſtouri herniare, the winged director, the blunt ſciſſars, &c. &c. &c. all which are calculated for the defence and preſervation of the inteſtine, in the diviſion of the ſac and tendon; but whoever will make uſe of the two knives juſt mentioned will find, that he will never ſtand in need of any other inſtrument, and that he will with them be able to perform the operation with more eaſe to himſelf, with leſs hazard to his patient, and with more * apparent dexterity, than with any other whatever.

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* They who are not accuſtomed to perform operations of ſuch conſequence as this is, are apt, from timidity, to be too ſparing in making their external inciſion, by which means they add conſiderably to their own embarraſſment, and to the fatigue of the patient. A free diviſion of the hernial ſac and ſcrotum, downwards, gives room for the more eaſy admiſſion of the finger into the ſtricture, in order to divide it, and affords an opportunity of handling the inteſtine or omentum more gently, as well as more properly,

The ſac being laid open, the inteſtine generally puſhes out immediately, (unleſs it is confined, by being enveloped in the omentum) and appears to be much more in quantity than it ſeemed to be, while it was confined within the ſcrotum.

This is the time to try whether by gently drawing out a little more of the gut, its bulk cannot be ſo reduced as to enable the ſurgeon to return it back into the belly, without dividing the tendon. In the caſe of the protruſion of a very ſmall piece of inteſtine it has been found practicable, the difficulty of returning a large portion ariſing principally from the quantity of meſentery engaged in the ſtricture; and, indeed, though it may now and then happen that a ſmall piece of gut may be returnable without a diviſion of the tendon, yet if it cannot be very eaſily accompliſhed it had better not be attempted, ſince in the ſtate in which this part muſt neceſſarily be to require the operation thus far, any degree of force uſed to it will, moſt probably, be more prejudicial and hazardous than the reſt of it, if performed properly with a knife.

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perly, in order to return them into the belly, both which neceſſary parts of the operation are much impeded by a ſmall inciſion.

As therefore no poſſible advantage can ariſe from a ſmall wound, but on the contrary it may be attended with great inconvenience both to the patient and ſurgeon; I would take the liberty of adviſing, when ſuch an opening is made in the hernial ſac as will admit the operator's fore-finger, and upon it his knife, that he immediately divide the ſac and ſcrotum down to the bottom. It is true, that upon ſuch diviſion the quantity of inteſtine will ſeem to be increaſed, and an ignorant by-ſtander may be alarmed at this fallacious appearance, which is produced merely by the confined, compreſſed gut being ſet free, and not by the addition of any more. The advantage which will ariſe to the operator, and conſequently to the patient, from ſuch diviſion, is real and great, it will enable the former to finiſh his work with freedom, and ſpare the latter a great deal of pain.

An attention to the natural ſtructure, figure, and direction of the parts, will give us the beſt information how to make the diviſion of the ſtricture to the beſt purpoſe, and with the leaſt hazard.

The tendon of the obliquus deſcendens muſcle runs in an oblique direction from above downward, and the natural opening which is always found in it, and through which the hernia paſſes, is made by a kind of ſeparation of the fibres from each other; the direction of this opening is the ſame as that of the tendon, that is, obliquely downward, from the os ilion to the os pubis; the knife therefore ſhould be ſo managed, as rather to continue this ſeparation, than to make any tranſverſe ſection; its edge ſhould be applied to the ſuperior and poſterior part of the oval, and carried upward, and obliquely backward, until a ſufficient opening is made to ſerve the purpoſe; by this means the fibres of the tendon will be rather ſeparated from each other than cut, and in all probability the riſk ariſing from the inciſion will be leſſened.

It is generally adviſed to make the diviſion of the ſtricture free, and large, as well to permit the eaſy return of the parts, as to prevent the inconvenience which it is ſuppoſed will be more likely to attend a ſmall wound in a tendinous body than a large one; the firſt intention, the eaſy return of the inteſtine, ſhould certainly be fulfilled, and therefore the inciſion ought always to be large enough for that purpoſe, and to afford an opportunity of paſſing the end of the finger round on the inſide, in caſe of any adheſion; but as too large an opening may be attended with very ill conſequence, it ought alſo to be guarded againſt. In the majority of caſes, a ſmall inciſion will be found ſufficient for the purpoſe of reduction; and where the parts are free from adheſion, and the ſafe return of them is the only object of attention, a ſmall diviſion made in the manner already directed is not liable to

any more pain or trouble than a large one, and may therefore be ſafely truſted.

Among the authors who write from each other, and not from practice, are to be found accounts of caſes, in which the tendon only has been divided, and not the hernial ſac, which latter has been returned through the inlarged opening, with its contents incloſed; and the ſame writers are very particular in their directions how to accompliſh this operation. If it was practicable, (which the univerſal adheſion of the ſac with the cellular membrane of the ſpermatic chord renders abſolutely not ſo) there would be ſtill ſeveral material objections to the doing it; which objections, as the thing is not capable of being executed, it is needleſs to mention.

Though I am perfectly ſatisfied that the caſe of a ſtrangulated hernia is moſt frequently as I have repreſented it, viz. that the diſorder in the inteſtine is originally produced by the ſtricture made on it by the borders of the tendinous opening of the abdominal muſcle, and that the gut is in general perfectly ſound, and free from diſeaſe, before it becomes engaged in ſuch ſtricture, yet I think it right to acquaint the uninformed reader, that it has been, and ſtill is the opinion of ſome very ingenious men, that the diſeaſe is originally in the gut, and that the ſtricture is an accident ariſing from the inflammation and diſtention of it; or, in other words, that the inteſtine is firſt inflamed, and by means of the alteration produced by ſuch inflammation, becomes too large for the tendinous aperture, which therefore makes a ſtricture on it, and which, they think, is the reaſon why the chirurgical operation is often unſucceſsful.

For my own part I cannot think that either the fact, or the inference is in general true.

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An inflammation moſt certainly may, and frequently does, attack any part of the inteſtinal canal, and conſequently that part of it which happens to be included within a hernial ſac may accidentally be ſo affected: when this is the caſe, the ſwelling and diſtention which naturally and neceſſarily attend an inflammation of the gut, will render it leſs capable or perhaps quite incapable of repaſſing the opening in the abdominal tendon, which tendon may therefore make ſuch ſtricture on the part ſo diſeaſed, as greatly to heighten the firſt ſymptoms, and bring on ſtill worſe; and, when this happens, the operation will alſo be leſs likely to be ſucceſsful, it being calculated for the relief of only ſuch ſymptoms as ariſe from a piece of inteſtine (in other reſpects ſound and free from diſeaſe) being ſo bound by the ſaid tendon, as to have its periſtaltic motion, and the circulation of the blood through it, impeded or ſtopped; whereas the other complaint, conſiſting primarily and originally in an inflammation of the gut itſelf, the mere removal of it from ſtricture is not, nor can be, equal to the cure of the diſeaſe. That the caſe is a poſſible one I make no doubt, having once or twice ſeen it in old ruptures; but it is a very rare one, and by no means to be admitted either as a proof that the miſchief done to the inteſtine, in the generality of ſtrangulated ruptures, does not moſt frequently proceed from the ſtricture made by the tendon, or as a diſuaſive from performing an operation, whenever it would otherwiſe be thought neceſſary.

It is not however a mere ſpeculative point, it is really a matter of conſequence, and ought to be attended to by all thoſe who have it in their power to make frequent obſervations on ſuch ſubjects; for on the truth or falſehood of this doctrine depend a few very material points in practice, ſome of which ought ſo to influence a ſurgeon's conduct as to make it conſiderably different in one caſe from what it ſhould be in the other.

Very bad ſymptoms, ſuch as pain, tenſion of the belly, ſickneſs, vomiting, hiccough, fever, and ſuppreſſion of ſtools, are often produced in a very ſhort ſpace of time by the deſcent of a piece of gut, upon ſome exertion of ſtrength in perſons who were immediately before ſuch accident at perfect eaſe, and free from all complaints relative to the belly: if the diſeaſe be not diſcovered, or if our attempts to reduce the inteſtine are not ſucceſsful, theſe ſymptoms are heightened, and the patient often dies of a mortification; if we do ſucceed in the timely reduction, all theſe terrible ſymptoms often ceaſe inſtantaneouſly, and the patient feels neither pain nor inconvenience of any kind from that moment. Would this moſt probably and moſt frequently happen, if the diſeaſe was generally in the inteſtine, and the ſtricture of the tendon merely accidental?

In that kind of diſeaſe of the inteſtinal tube, which is ſaid to be produced by inflammation, and thought to be attended with ſpaſmodic ſtricture, or contraction of its muſcular fibres, there is ſuch an alteration made in its periſtaltic motion, and ſuch impediment in the execution of its principal offices, that what is taken into the ſtomach is rejected by vomit, and the fæces are not protruded thro' the colon and rectum, the belly is tight and painful, the ſkin hot, the pulſe quick and hard, and the patient feels a reſtleſſneſs and anxiety which are very diſagreeable: this is one of thoſe caſes which require immediate aſſiſtance, and will admit of no delay; the progreſs of the ſymptoms from bad to worſe is generally very rapid, and if the diſeaſe be not ſoon ſubdued, the patient dies. Free and repeated evacuation by phlebotomy, and lenient purges, the uſe of a ſemicupium, a warm bath, glyſters, and ſometimes briſk cathartics, joined with opium, are the remedies generally preſcribed, and if made uſe of in time are often ſucceſsful, but if neglected, the caſe moſt frequently ends ill.

It is very true that the ſame ſymptoms occur in a ſtrangulated hernia; but if that hernia be reducible, they generally ceaſe upon ſuch reduction, nor does the patient want any other aſſiſtance than what is neceſſary to prevent a new deſcent of the gut: in this reſpect therefore the two caſes differ very materially; in the latter, nature ſtands in need of no farther aſſiſtance from art, but as ſoon as the manual operation is performed, returns to the execution of her natural functions; in the former, ſhe is found ſo very inſufficient toward aſſiſting herſelf, that it ſeems to be one of the few caſes, in which medical aſſiſtance can hardly ever be diſpenſed with.

Now if the bad ſymptoms attending an irreduced rupture were primarily owing to an inflammation of the inteſtine within it, and that the tendinous aperture made a ſtricture on it, only in conſequence of the diſtention of the gut, allowing this ſtricture to aggravate the complaint conſiderably; yet the diviſion of it, or the reduction of the inteſtine, can never be ſuppoſed to do more than alleviate, or remove ſuch aggravation; the original inflammation of the gut muſt ſtill remain, nor can it be ſuppoſed to be leſſened by the inteſtine having been girt tight by the tendon; and yet, as I have juſt now obſerved, we very rarely (at leaſt in ruptures that are not of ancient date) meet with any trouble or complaint after reduction is timely and compleatly made, and the inteſtine returned into the belly in a ſound ſtate; the vomiting moſt frequently ceaſes immediately, or in a very ſhort ſpace of time, a diſcharge is made by ſtool, the tenſion of the belly goes off, and tho' the patient is not always inſtantaneouſly well, in caſes where the ſymptoms have been very threatening, yet all ſuch complaints as proceeded from an obſtruction to the execution of the proper offices of the inteſtinal canal, generally diſappear immediately.

From the nature and progreſs of the ſymptoms, in a *miſerere* (as it is called), from the extreme pain of the firſt attack, from the perfect eaſe

eaſe a little while before death, and from the mortified appearance of the inteſtines after ſuch event, I think it is moſt probable, that if we could have an opportunity of ſeeing the inteſtine during the firſt part of this complaint, we ſhould find all the appearances of inflammation; whereas in many of thoſe upon whom the operation for the bubonocele is ſucceſsfully and timely performed, this is not the caſe; the inteſtine ſeldom bears marks of high inflammation, unleſs the operation has been long delayed, nor do the ſymptoms of ſuch complaint uſually attend afterward; the mortified part often does not exceed an inch, or an inch and half in length, and is almoſt always confined to that part of the gut which is on the outſide of the tendinous opening, all within the belly being ſound and fair. To which may be added this circumſtance, that when the parts contained in a hernial ſac become mortified by the delay of the operation, the ſac itſelf, (which has no immediate connection with the inteſtine, or its veſſels) the cellular membrane covering it, nay the ſkin is often found in the ſame ſtate.

Theſe are my principal reaſons for believing that the mere ſtricture made by the tendon is, in the generality of incarcerated ruptures, not only a ſufficient, but the primary, and indeed the ſole cauſe of all the ſymptoms, and all the miſchief; and therefore I muſt alſo be of opinion, that whoever neglects to perform, or at leaſt to propoſe the operation, when he finds reduction impracticable, and the ſymptoms preſſing, does in ſome meaſure contribute to the deſtruction of his patient *.

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* Indeed, tho' we ſhould ſuppoſe the caſe to be as thoſe gentlemen have repreſented it, viz. that the complaint begins in the inteſtine, and that the ſtricture made by the tendon is not a primary cauſe, but an effect of the diſeaſe, I do not ſee how we can avoid propoſing the operation; for whether the increaſed ſize of the gut be owing to the inflammation,

On the other hand, I am convinced by ſome inſtances which I have met with, (and which one time or other I hope to be able to preſent to the publick, in a collection with many others) that the opinion has ſome foundation in truth, and that perſons labouring under old ruptures, which have been long in the ſcrotum without giving any trouble, in which the quantity of inteſtine is often very large, the tendinous aperture much dilated, and the hernial ſac thick and firm, are thoſe to whom this misfortune has happened, and who indeed, if their caſe be duly conſidered, will be found moſt liable to it; there being no reaſon in nature why that part of the inteſtine which is contained in ſuch a hernia, ſhould not be ſubject to every complaint, or diſeaſe, to which every other part of that canal is liable: and this opinion I am more confirmed in, by having met with more than one ſubject with ſuch old ruptures, who have had all the ſymptoms of a ſtrangulation, and in whom, I am ſure, there was no ſtricture made by the tendon, though the gut remained in the ſcrotum.

Although I have through the courſe of this ſection repeatedly recommended the early performance of the operation, yet I muſt deſire not to be miſunderſtood, as if I meant to adviſe it before proper attempts had been made for reduction, or the ſymptoms become alarming; much leſs that I would propoſe it as a means to obtain a radical cure in thoſe ruptures which are returnable by the hand merely; a thing boaſted of, and practiſed by pretenders, but not to be thought of by any man who has either judgment, humanity, or honeſty.

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tion, which renders it too large to paſs the abdominal opening, or whether it be the mere effect of ſtricture made by the tendon, in either caſe it will bind equally, and the event muſt be exactly the ſame, as far at leaſt as the ſtricture has to do with it: for when the inteſtine is inflamed, whether ſuch inflammation preceded or ſucceeded the confinement of it by the tendinous opening, the ſymptoms can never be appeaſed, but by the releaſe of the gut from its confinement.

The only intent of it ſhould be to preſerve life, by reſcuing the patient from the hazard of mortification, likely to enſue from the ſtricture; and though I have preſſed it with ſuch view, and in ſuch circumſtances, and think it ought always to be done, yet I ſhould be very ſorry to have it thought that I encouraged the performance of it wantonly, or unneceſſarily, which muſt be the caſe, whenever it is done with any other intention.

Conſidered as a means to obtain a perfect or radical cure, or to prevent the neceſſity of wearing a truſs, every man at all converſant with theſe things knows, that it moſt frequently fails of procuring that end, and that moſt of thoſe people who have been obliged to ſubmit to it for the preſervation of their lives, have alſo been obliged to wear a bandage ever afterwards, to prevent the inteſtine from ſlipping down behind the cicatrix, into the groin.

In ſhort, though the danger from the operation, when performed in time, is in my opinion never to be mentioned with that which muſt ariſe from the ſtricture, if neglected, yet ſuch operation never ought to be attempted but with a view to prevent the impending ill effects of ſuch ſtricture, and will not ever (I dare believe) be put in practice with any other intention, by any fair or judicious practitioner, by any man who has the leaſt regard for his own character, his fellow-creature's ſenſations, or for any thing but money.*

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* Perhaps it may appear extraordinary, but this neceſſarily ſevere operation has, by ſome of our modern quacks, been recommended, and even practiſed, for the cure of omental hernias; more than one perſon has loſt his life, that is, has been murdered in the attempt; but that ſeems to be a circumſtance of ſmall importance in the minds of theſe operators, nor does it at all prevent the credulous part of mankind from truſting them; though one would imagine that much ſtronger proofs, either of the judgment, humanity, or honeſty of ſuch practitioners were not requiſite.

THE ſac and ſtricture being laid open and divided, the contained parts come into view, and according to the different circumſtances of the rupture and of the patient, will be found in different ſtates, and require different treatment.

Theſe ſtates are reducible to three general heads, that is, the contained parts will be found, either in a ſound, healthy, looſe, unconnected ſtate, and fit for immediate reduction; or in a ſound ſtate, but, from ſome particular circumſtances, incapable of being immediately replaced; or in an unſound, diſeaſed ſtate, and requiring to be treated accordingly.

If the rupture conſiſts of a piece of inteſtine only, and that neither mortified nor adherent, the ſooner it is returned the better, and the more gently it is handled for reduction, the better alſo.

If the inteſtine be accompanied with a portion of omentum, the latter, (if in a proper ſtate) ſhould be returned firſt.

In returning the inteſtine, care ſhould be taken to endeavour to put in that part firſt which came out laſt, otherwiſe the gut will be doubled on itſelf, and the difficulty and trouble be thereby much increaſed; and in making the reduction, the fingers ſhould be applied to that part of the inteſtine, which is connected with the meſentery, rather than its convex part, as it will both ſerve the purpoſe better, and be leſs likely to do miſchief.

While the reduction is making, the leg and thigh on the ruptured ſide ſhould be kept elevated, as ſuch poſition of the limb will much facilitate the return of the parts.

Long confinement in the ſcrotum will, in ſome people, produce ſlight adheſions, by ſlender filaments, which are generally very eaſily ſeparated by the finger, or divided by a knife, or ſciſſars, whether the

adheſions be of the parts of the inteſtine *inter ſe*, or to the hernial ſac. If the adheſion be of the former kind, and ſuch as proves very difficult to ſeparate, it will be better to return the gut into the belly as it is, than to run the riſque of producing an inflammation by uſing force; if it be of the latter, that is, if the connection be with the ſac, there can be no hazard in wounding that, and therefore it may be made free with.

It has been ſaid by ſome writers, that if the piece of omentum be ſo very adherent that the ſurgeon does not chuſe to ſeparate it, that it may very ſafely be left, that it will firſt ſuppurate and then ſhrink, and very little retard the healing of the ſore. What experience the gentlemen who talk in this manner may have had of this kind of caſe, I know not, but I never yet have ſeen any, in which it could poſſibly be thought neceſſary to leave the patient in ſuch circumſtances, or in which an attachment of the omentum was incapable of being ſet free, either by diſſecting its adheſions, or retrenching a part of it.

The prolapſed part being replaced, the next object of conſideration is the hernial ſac: this, if large, thick, and hard, will prove ſlow, and difficult of digeſtion, render the edges of the ſore tumid and painful, and often retard a cure conſiderably, by producing troubleſome abſceſſes in the ſcrotum.

A conſiderable part of it may very ſafely and properly be removed; no part of it is of any conſequence except the poſterior, or that with which the ſpermatic veſſels are connected; all the reſt being looſe, by means of the cellular membrane, is therefore very eaſily ſeparable, and had therefore better be removed than left.

It has been propoſed by theoretic writers to paſs a ligature round the upper part of the neck of the ſac, in order as it is ſaid to procure the union of its ſides, and thereby more certainly to prevent the future

future deſcent of any thing from the belly: but to this there are many objections; the principal of which are, that if the ligature was not made ſtrict, it could ſerve no purpoſe, and if it was, it would be very likely to injure the ſpermatic chord, if included in it; by preventing part of the diſcharge, it might alſo occaſion very troubleſome ſymptoms, and, upon the whole, is by no means adviſeable.

It has alſo been ſuppoſed, that the inteſtine may be found ſo inherent as not to admit of being ſet free, and in this caſe it has been adviſed to remove the ſtricture, by dividing the ſac and the tendon, and then to leave the parts looſe. This is mentioned by many writers of eminence, and therefore I have taken notice of it, though it is a kind of caſe which, I muſt own, I have never ſeen, nor do I ſuppoſe that I ever ſhall. I have ſeen the inteſtines very firmly adherent to each other, to the ſac, to the omentum, and to the teſticle; but never in ſuch a ſtate of adheſion, as to be incapable of being returned. The adheſion of the parts of the inteſtine *inter ſe*, are moſt frequently eaſily ſeparated; but if they ſhould not, ſtill theſe are no hindrance to the gut being returned; and if the caul be ſo connected as to prove troubleſome to detach, it may with great ſafety be cut off; ſo that the connection here meant muſt be of the inteſtine with the hernial ſac: of theſe two parts we are intereſted only for the preſervation of one, and may without hazard make free with the other; the ſeparation may indeed be tedious, and ſometimes difficult, but let the difficulty or trouble be what they may, the ſeparation muſt be accompliſhed, it being abſurd to think of leaving a piece of inteſtine looſe, in the divided ſcrotum, which, from the removal of the ſtricture above, will be liable to be increaſed in quantity, from every unguarded motion, and ſubject to all the inconveniencies which the influence of the air muſt neceſſarily produce on ſuch tender parts; not to mention the great difficulty of managing the ſore in this ſtate, and

the pain and other bad ſymptoms, which much ariſe from the daily uncovering the inteſtine. Any trouble, therefore, which may attend the ſeparation, muſt be ſubmitted to, rather than to follow this ſtrange advice, which indeed the writers who give ſeem not to underſtand, for to leave the parts as they were found, and as they direct, is impoſſible; they were found contained in a hernial ſac, and in the ſcrotum, defended from the air, and in ſome degree limited as to quantity, both by the ſtricture above, and the ſac below; the neceſſary operation has removed that ſtricture, divided the ſac and ſcrotum, and ſet all looſe and free, and therefore if the inteſtine be not returned into the belly, and kept there, the quantity which may fall out, may be ſo large as to produce the moſt fatal conſequences, notwithſtanding any attachments which ſome part of the canal may have contracted.

SECT. VI.

HITHERTO the parts compoſing a rupture have been conſidered as diſplaced, as inflamed, as having contracted unnatural connections and adheſions, but being ſtill ſo unhurt in their texture as to remain ſound, within the laws of the circulation, fit to be returned into the belly, and affording a reaſonable proſpect of ſucceſs in the event.

But, on the other hand, if the inflammation ran very high, and has either been neglected, or not given way to proper treatment, and the operation has been too long deferred, the parts, though looſe, may become ſo diſeaſed, as to be unfit for immediate reduction.

The diſeaſe here meant is gangrene, or mortification, produced by the ſtoppage of the circulation of the blood through the part which

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is on the outſide of the ſtricture. The gangrenous or mortified ſtate of theſe parts may be of more or leſs extent, according to the quantity contained in the ſac; but be the extent of ſuch diſeaſe what it may, the part ſo affected ought never to be returned looſe into the belly, (more eſpecially if it be inteſtine) without ſome caution.

The omentum indeed may be made more free with. If this be ſo altered as to be plainly unfit for immediate reduction, it may be removed; that is, the altered part may be cut off from the ſound.

This is certainly true; but it is a point of practice which appears to me to deſerve ſomewhat more regard than is moſt commonly paid to it by writers. All that is generally ſaid of it is, that if the omentum be found in an unſound ſtate, a ligature ſhould be made on it juſt above the altered part, what is below ſuch ligature ſhould be cut off, and the ligature ſhould be left hanging out of the wound, that it may more eaſily be taken away, when it is caſt off. This is the general doctrine, and indeed the general practice; but which I cannot help thinking is delivered down, and followed by us, ſomewhat inconſiderately.

When the omentum is in ſuch ſtate as to be fit for being returned into the belly, ſuch return ought never to be neglected, or omitted; the uſes of the caul are great and obvious, and the want of it muſt be productive of inconvenience to the patient; its warmth, its greaſineſs, its lubricity, its extenſion over the ſurface of the inteſtines, together with the conſtant motion of that canal, prove its utility, and in ſome meaſure point out what the inconveniencies muſt neceſſarily be, which follow the removal of it. But it is ſometimes found in ſuch ſtate, as to be unfit for reduction; and then we muſt embrace the leſſer of the two evils, and remove ſuch part of it as we ought not to return. This is ſaid by every body, and is certainly true; but ſeems to me, as I have juſt now obſerved, to require more conſideration than is generally ſpent upon

upon it, as well with regard to the ſtate requiring ſuch operation, as the manner of executing it. It is commonly ſaid, that if it be found in large quantity, conſiderably hardened, or if it be altered in its texture, (that is, by gangrene or mortification) that it ought to be retrenched. The two ſtates ſaid to require this retrenchment are very materially different from each other; the neceſſity of it in the latter is evident; but I cannot help ſaying, that I think it is ordered in the former very unneceſſarily; and that the general method alſo of performing it in the latter, appears to me to be both injudicious and prejudicial. There may poſſibly now and then occur a caſe, in which ſuch alteration may have been made in the mere form and conſiſtence of the prolapſed piece, by induration, inlargement, &c. that the removal of a part of it may become neceſſary; but this, though it does happen ſometimes, is very unfit to be made a general rule of. The reaſon given, is, that it will lie uneaſy in a hard lump within the patient's belly; which is not neceſſarily or generally true, as I have ſeveral times experienced; having returned it when its form and conſiſtence have been much altered, without finding any future inconvenience: ſo that ſuch alteration merely, is not a general reaſon for cutting it off: on the other hand, I am ready to allow, that it ſometimes is, and that the piece of caul ſo altered had better be removed, and that it may alſo be ſo connected, that it will be more to the patient's advantage to have ſuch connected part taken away at once, than go through the pain and fatigue which the ſeparation may require; in which caſe, my objection lies principally againſt the preſcribed method by ligature. Indeed when it is in a gangrenous ſtate, a part of it muſt neceſſarily be removed, as ſuch ſtate makes the return of it into the belly highly improper. To accompliſh this, we are ordered to make a ligature on the ſound part of the omentum, juſt above what is altered, and then to cut it off immediately below ſuch ligature: and the reaſon given for doing

doing it in this manner is, that all the altered part may be removed without any riſque of hæmorrhage. This method of acting is founded on a groundleſs fear, and is often attended with bad conſequences, which, not being ſuppoſed to flow from this cauſe, are not ſet to its account.

The fear of hæmorrhage from the divided veſſels, if the omentum be cut in a ſound part, and the apprehenſion of miſchief likely to enſue from the ſhedding of ſanies or matter into the belly, if the diviſion be made in the diſeaſed, gave riſe to the practice of tying it before amputation; but neither the one nor the other of theſe apprehenſions are well grounded, nor are they ſufficient reaſons for ſuch practice.

The fear of hæmorrhage is almoſt if not perfectly without foundation, as I have ſeveral times experienced; and the diſcharge of a fluid of whatever kind from the border of the divided membrane, is of no conſequence at all; neither would the ligature prevent it if it was, as muſt appear to every one who will give the ſubject one moment's ſerious conſideration.

But this is not all: I am ſorry to ſay that I am by experience convinced, that making a ligature on the caul is not only unneceſſary, but frequently pernicious, and ſometimes even fatal.

A mere theoretical conſideration of the parts will convince any one of the probability of miſchief ariſing from ſuch practice; but beſides theſe conſiderations, I can take upon me to ſay, that I have ſeen it add to the hazard of the caſe, and more than once deſtroy the patient. I have ſeen the omentum become diſeaſed, and gangrenous in all its extent, above the ligature, between it and the ſtomach, when it was not gangrenous at all before it was tied; but on the contrary, in a ſound ſtate, and only tied in order to its being more ſecurely retrenched. I have ſeen a whole train of bad ſymptoms, ſuch as nauſea, vomiting,

miting, hiccough, fever, anxiety, reſtleſſneſs, great pain in the belly, and an incapacity of ſitting upright, or even of moving without exquiſite pain, precede the death of a man, whoſe omentum was tied merely becauſe of its inlargement, whoſe inteſtines uninterruptedly from the time of the operation to his laſt hour, performed their proper office of diſcharging the fæces, and were found perfect and untainted after death, but whoſe omentum appeared in a highly inflammatory ſtate in general, and in many parts above the ligature gangrenous.

The direction given by many writers to put the patient's body in motion, or to give him a kind of ſhake, in order to ſet to rights the diſturbance and derangement produced by tying the caul, would be too abſurd to mention, did it not ſerve to prove, that even the very people who have perſiſted in this pernicious practice were themſelves ſenſible of ſome of its probable ill conſequences, though they would not try to remedy them: they thought, that thoſe which might follow from hæmorrhage, or the diſcharge of ſanies, were ſtill greater, but made no experiment, in order to know whether they were or not.

I will not pretend to ſay, that there never was a dangerous or fatal flux of blood, from the diviſion of the omentum, without ligature, but I can truly ſay that I never ſaw one; that I have ſeveral times cut off portions of it, without tying, and never had trouble from it of any kind, though I have always made the exciſion in the ſound part; and that, from the ſucceſs which has attended it, I ſhall always continue to do ſo, whenever it ſhall become neceſſary. Upon the whole, I cannot help thinking the ligature both unneceſſary and pernicious, and can venture from experience to ſay, that any portion of the caul, which it may be thought neceſſary to remove, may very ſafely be cut off, without any previous tying.

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The beſt and ſafeſt method of performing this operation, is with a good pair of ſtraight ſciſſars, having firſt expanded it, as well on account of its more eaſy diviſion, as to prevent the miſchief which would attend the cutting a piece of inteſtine, if it ſhould chance to be wrapped up in it; and if any fear ſtill remains of hæmorrhage, the exciſion may, in the caſe of mortification, be made juſt within the altered part of it; in which caſe, there will no more be left to be caſt off, than there muſt be when a ligature is made.

If the gangrene, or ſphacelus, have taken poſſeſſion of the inteſtine, and conſiſts of a ſmall ſpot only, which by caſting off, might endanger the ſhedding its contents into the belly; the method of endeavouring to prevent that inconvenience is, by connecting the upper part to the wound by means of a needle and ſtrong ligature; by this means, when the mortified part ſeparates, the fæces are diſcharged by the wound for ſome time; after which it has been known to contract gradually, and heal firmly: but whether the event proves ſo lucky or not, this method of ſecuring the gut ſhould never be omitted.

In making this artificial attachment of the inteſtine to the inſide of the belly, care muſt be taken not to wound the gut; the needle muſt be paſſed through the meſentery, at a ſmall diſtance from the inteſtine, and ſuch a portion of that body included within the ſtitch, as ſhall be likely to hold faſt long enough to render the connection probable. If the altered portion of the gut be of ſuch extent as to require exciſion, but yet not ſo large as to prevent the extremities of the divided parts from being brought into contact with each other, their union muſt be endeavoured by future; in doing this, the ends of the inteſtine ſhould be made to lay ſomewhat over each other, by which means the future will be the ſtronger; and when the two ends are thus ſewed together, they muſt both be faſtened to the inſide of the belly, at the upper part of the wound, that in caſe the union does not take place, the

discharge of fæces may, if possible, be made through the groin. But if the disease is of such extent as to prohibit the bringing the two ends together, the treatment must be different. In this case, as it is impossible to preserve the continuity of the intestinal canal, the aim of the surgeon must be to prevent the contents of it from being shed into the belly, and to derive through the wound in the groin all that which should, in a sound and healthy state, pass off by the rectum and anus.

To accomplish this, he must take care that neither extremity of the divided intestine slip out of his fingers; then with a proper needle, and a strong ligature, he must connect both of them to the upper edge of the wound; the suture, with which the connection is made, must not be slight, lest it cast off before a due degree of adhesion is procured; and it must also be made in such a manner as to preserve the mouth of the gut as free and as open as may be, upon which the patient's small remaining chance does in some measure depend. The method advised by La Peyronie, of stitching the mesentery instead of the intestine, is judicious and right.

The dressing in this case should be as soft and as light as possible, nothing heavy, nothing crammed in, nothing which can irritate or give pain; and the patient must observe the most rigid severity of diet, and the most perfect quietude both of body and mind: with regard to medicine, whatever is exhibited must be calculated to procure rest and ease, to quiet the febrile heat, to keep the body open, and, if necessary, (as it most frequently must be) to resist putrefaction. All the rest must be left to nature, who is by her great Creator furnished with such powers, as sometimes to produce wonderful effects, even in these deplorable cases.

This is the substance of the best practice, and of the most approved doctrine, in these circumstances, and which has sometimes been attended

tended with a fortunate event; but the practitioner who is ſo ſituated as to ſee but little of this kind of buſineſs, ought to be appriſed how very little reaſon there is to hope for, or to promiſe ſucceſs.

More cenſure is incurred by an unguarded prognoſtic, than by a ſucceſsleſs event, if properly and judiciouſly foretold; and if a man was to form his judgment upon this, and ſome other hazardous diſorders, from books only, he would expect very little of that trouble and diſappointment, which he will moſt certainly meet with in practice.

Writers in general are too much inclined to tell their ſucceſſes only, and are fond of relating caſes of gangrene and mortification, in which large portions of inteſtine have been removed, the proper operations performed with great dexterity, and in which the events proved fortunate; and of this they all give us inſtances, either from their own practice, or that of others, or perhaps ſometimes from imagination; by which the young reader is made too ſanguine in his expectation.

That theſe extraordinary ſucceſſes do ſometimes happen, is beyond all doubt; and it is every man's duty to aim at the ſame by all poſſible means; but ſtill the inexperienced practitioner ſhould alſo be informed, how many ſink for one that is recovered, and how many lucky circumſtances muſt concur, with all his pains, to produce a happy event in theſe very deplorable caſes. Without this caution he will meet with very irkſome diſappointments, and having been often baffled, where he thought he had good reaſon to expect ſucceſs, he will ſometimes meet with it ſo very unexpectedly, that he will be inclined to believe the ſarcaſtical diſtinction between cures, and eſcapes, not ill-founded.

To ſay the truth, the hazard is ſo great, and the utmoſt power of art ſo little, that what Iapis ſaid to Æneas with relation to his cure, may with great propriety be ſaid here,

Non hæc humanis opibus, non arte magistra
Proveniunt; neque te Æneæ mea dextera servat:
Major agit Deus.

SECT. VII.

THE portion of inteſtine, or omentum, which compoſed an hernia, being replaced while ſound and unhurt, either by inflammation, or gangrene, it had always till very lately, been ſuppoſed, that if a new deſcent of them was prevented by the immediate application of a bandage, no miſchief was likely to enſue, and that while the truſs executed its office properly, the patient was thereby free from danger.

But within theſe few years, it has by ſome of the French writers been ſaid, that the hernial ſac may be ſo looſe and unconnected with the ſpermatic chord, that it may be returned into the belly, while it contains a portion of inteſtine, labouring under a ſtricture made by the neck of the ſaid ſac; and of this they have given inſtances of caſes,---or of what appeared to them to be ſo.

Mr. Le Dran tells us, that in one of theſe, the rupture was with ſome difficulty returned, but the ſymptoms nevertheleſs continuing, the patient died; and that upon opening the body he found the hernial ſac including a conſiderable portion of inteſtine, returned into the belly; and that the ſtricture made by the neck of the ſac, bound ſo tight, that he could not diſengage the gut from it without cutting it;---his words are,

" Nous trouvames dans le ventre le ſac herniare, qui avoit trois " pouces de profondeur, ſur huit pouces de circonference; et dans

" ce

" ce ſac etoit encore enfermée une demie aulne de l'inteſtine jejunum. " Tenant le ſac à plein main, je voulus en faire ſortir l'inteſtin, en le " tirant par l'un de bouts; mais la choſe me fut impoſſible, tant l'en- " trée du ſac etoit reſſerrée, & je n'en vins au bout, qu'en dilatant " cette entrée avec les ciſeaux," &c.

In De la Faye's notes on Dionis may alſo be ſeen an inſtance of this kind of caſe, or at leaſt of what was taken for ſuch.

I have already given my opinion concerning the practicability of returning a hernial ſac back into the abdomen, after it has been out any conſiderable length of time; I never ſaw, either in the dead or the living, any reaſon to ſuppoſe it poſſible; the aſſertions of theſe gentlemen are very poſitive, and I muſt leave the reader to judge of them as he can.

The ſtraitneſs of the neck of the ſac is ſuppoſed to be produced by the preſſure of the bolſter of a truſs, worn to keep the parts from deſcending. This part of the ſuppoſition is probable, but it muſt alſo be conſidered, that the ſame preſſure muſt almoſt neceſſarily occaſion adheſions of the outſide of the ſac to the ſurrounding cellular membrane; and if we were to ſuppoſe the ſac looſe and unconnected in every other part, (a thing I muſt own I never ſaw) yet this alone would for ever prevent its return into the belly.

It is indeed repreſented as a circumſtance not very frequently occurring, which is fortunate for mankind; as it can neither be foreſeen nor prevented, and would add conſiderably to the hazard of ruptures.

It is ſaid, that by carefully attending to the manner in which a rupture goes up, we may diſtinguiſh whether the ſac returns with it or not; that if it does, including the gut, a hard body will be perceived to paſs under the finger, and that the inteſtine in its paſſage through the abdominal opening, will not make that kind of guggling noiſe, which it is uſually found to do, when the ſac does not return with it.

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This, inſtead of being the characteriſtic mark of the return of the ſac, will almoſt always be found to be the caſe when a portion of omentum, which has been much compreſſed, goes up at the ſame time with the gut; and therefore, however ingenious this obſervation may ſeem, conſidered theoretically, it is not to be depended upon in practice.

But ſuppoſing we had ſome clear and undoubted marks, by which we could always know when this was the caſe, I do not ſee how we could avail ourſelves of them; the inteſtine muſt be returned before we can have our information; and if inſtead of the uncertain, deluſive reaſons juſt given, we had the cleareſt and moſt ſatisfactory marks of what is ſuſpected, we have no remedy, but a very perplexing, tedious, and painful operation, which, I fancy, as few ſurgeons would in theſe circumſtances chooſe to perform, as patients ſubmit to.

I call theſe marks or ſymptoms, which theſe gentlemen have given us, doubtful and deluſive, becauſe they do not with any degree of certainty indicate the cauſe to which they are owing, or from which they ariſe; for the inflammation excited in the inteſtine by its having been engaged for ſome time in a ſtricture, will ſometimes produce all the ſame complaints after its return; but no chirurgical operation will relieve them.

In the common reduction therefore of an inteſtinal rupture by the hand, I do not ſee how we can avail ourſelves of this ſuppoſed diſcovery; and when the operation by the knife becomes neceſſary, it can be of no conſequence at all; for if the operation be properly performed, the hernial ſac will be divided through its whole length, before the inſtrument reaches the tendon; and therefore the gut can never be returned, while bound by any ſtricture from the former.

It has indeed been ſaid, that till this diſcovery was made, the ſtricture of the abdominal tendon, and the adheſion of the contents of

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the hernial ſac to its ſides, were the only known reaſons why any rupture ſhould be irreturnable; and that when ſuch caſe occurred, if the tendon only was divided, and the ſac reduced unopened, the patient might be loſt notwithſtanding all that had been done. To this I can only ſay, that a ſtricture made by the ſac only, is far from being a thing unknown, and is one of the principal reaſons why all judicious writers and practitioners have adviſed it to be always divided; and when this is properly executed, no ſuch conſequences can follow, even if the hernial ſac ſhould be (what I have never yet ſeen) capable of being returned into the belly.

SECT. VIII.

RUPTURES through the openings of the tendons of the oblique muſcles in females, are ſubject to the ſame ſymptoms, and require nearly the ſame general treatment, as the inguinal ruptures of males; and, like them, frequently admit of perfect cure, if not miſmanaged or neglected at firſt; the ſame kind of truſs is alſo neceſſary, and the ſame cautions with regard to the manner of wearing it.

The open texture of the cellular membrane ſurrounding the ſpermatic veſſels, and the laxity of the ſcrotum, render the hernial tumor much larger in males than it can well be in females; neither can it deſcend ſo low in the latter, as it does frequently in the former, for reaſons which are obvious.

The female hernia, if recent, has much the ſame appearance as the bubonocele in man; and when more of the gut or caul is thruſt forth than will lie conveniently in the groin, it puſhes down into one of the labia

labia pudendi, and ſometimes forms a tumor of pretty conſiderable ſize.

When eaſily reducible, like that of men, it gives but little pain, and generally returns into the belly upon going to bed, or upon the patient being laid in a ſupine poſture: when it is bound by the opening of the abdominal tendon, and is therefore difficult, or incapable of reduction, it is attended with the ſame ſymptoms as the incarcerated hernia in man, and requires the ſame general treatment, of bleeding, glyſters, purges, warm bath, &c. and (theſe failing) the chirurgic operation; by which the hernial ſac is laid open, and the ſtricture made by the tendon, divided.

In males, the cellular membrane which ſurrounds the ſpermatic veſſels and the hernial ſac, is generally ſo thickened by diſtention, as to take ſome little time to cut through, and proves thereby a kind of ſecurity to prevent the ſac from being too haſtily opened; but in females it ſhould be remembered, that the hernial bag lies immediately under the membrana adipoſa, and requires to be very cautiouſly divided, on account of its contents; nor have I in general obſerved the fluid contained in the hernial ſac of females to be equal to that which is found in males.

The piece of inteſtine which is ſtrangulated in the female bubonocele, is ſometimes ſo ſmall, as to occaſion very little tumor, and therefore, if recent, is very often, in modeſt women, not known to be the cauſe of the ſymptoms which it produces; if by accident it returns back before it is hurt in its texture, the diſeaſe paſſes for a cholic; if it proves fatal by mortification, it is taken for a *paſſio iliaca*, or *miſerere*. The means made uſe of for the relief of either of thoſe diſeaſes, being ſuch as will not, in general, without the aſſiſtance of a ſurgeon's hand, procure a return of the protruded gut, many a uſeful life has been loſt by the real cauſe of the miſchief not being known.

Every

Every ſymptom (the tumor excepted) which accompanies a rupture labouring under ſtricture, may attend a paſſio iliaca; that is, an inflammation and obſtruction to the execution of the office of the inteſtine, whether produced by the ſtricture of the abdominal tendon, or the ſpaſmodic contraction of its own muſcular fibres, will be attended with the ſame kind of ſymptoms; but though the general means of relief are alike in both caſes, yet the former requires alſo the aſſiſtance of a ſurgeon's hand to replace the piece of inteſtine, or all the reſt will be abſolutely ineffectual: if that be neglected, the caſe in general will end ill, and though the miſchief is ſet to another account, and ſuppoſed to have been without remedy, yet it is very certain that timely aſſiſtance would very frequently prevent ſuch bad conſequences. It therefore behoves every medical man, who may be called to women labouring under ſuch complaints, to be very attentive to them, and if the ſymptoms run high, never to omit inquiring whether there be any tumor in the groin, belly, or pudenda, and if there be ſuch, to be informed of what nature it is, before he goes any farther, or loſes any more of that time, which in all theſe caſes is ſo very precious.

In the caſe of the dolor colicus, the pain is either round about the navel, or diffuſed in general all over the belly; that ariſing from a ſtrangulated rupture is alſo very frequently general all over the belly, but is always more particularly acute at the groin, which part is alſo remarkably tender to the touch. The tenſion of the belly, and the vomiting in the paſſio iliaca, are in general the firſt, at leaſt they are very early ſymptoms; whereas they do not come on in ruptures, till after ſome time is paſt. Perhaps ſome other minute diſtinctions might be made between the apparently ſimilar ſymptoms of the two diſeaſes, but the beſt and moſt infallible way to know what the real ſtate of the caſe is, and thereby what ought to be done, is to have the parts examined where ſuch tumor may be expected; this removes all doubt,

and gives the practitioner the ſatisfaction of knowing, that, let the conſequence be whatever it may, he is purſuing a rational and probable method of relieving his patient.

SECT. IX.

THE crural, or femoral hernia, receives its name from its ſituation, the tumor occaſioned by it being in the upper and fore-part of the thigh.

To underſtand rightly the nature and ſituation of a crural rupture, it is neceſſary to attend to the anatomical ſtructure, and diſpoſition of the obliquus deſcendens muſcle of the abdomen. Whoever does this will find, that that part of it which runs obliquely downward from the ſpine of the os ilion, towards the ſymphyſis of the os pubis, is tucked down, and folded inward, as it were. This edge or border, ſo folded in, is what is called the *ligamentum Poupartii* by ſome, by others the *ligamentum Fallopii*, as if it was a diſtinct and ſeparate body, but is really no more than the inferior border of the tendon of the oblique muſcle. In all the ſpace between theſe two attachments, this tendon is looſe and unconnected with any bone; all the hollow, which is made by the form of the os ilion, between the point of the attachment of the ligament or tendon to that bone, and its other connection at the os pubis, is filled up by cellular membrane, fat, and glands; which parts are covered, and braced down, by a fine tendinous expanſion, communicating between the tendon of the obliquus deſcendens abdominis and the faſcia lata of the thigh.

Under this tendon, or ligament, the parts compoſing a hernia paſs, and produce a tumor, on the upper and fore-part of the thigh. The ſac is generally deſcribed as paſſing over the crural artery and vein,

which

which are ſaid to lie immediately behind it; but whoever will examine the ſtate of theſe parts, in a dead ſubject, will find that this is not a true repreſentation: the deſcent is made on one ſide of theſe veſſels, nearer to the os pubis; and the hernial ſac, if it be not greatly diſtended, lies between the crural veſſels, and the laſt mentioned bone, on which it reſts.

The femoral hernia is not ſo ſubject to ſtricture as the inguinal, there being a larger ſpace for the inteſtine to occupy; but when ſuch miſchief does happen, the ſymptoms are ſo exactly the ſame as they are in a ſtrangulated inguinal hernia, that it is quite unneceſſary to repeat them in this place. The method of attempting reduction, and the treatment of the patient in caſe of difficulty, are the ſame alſo; excepting that in the inguinal, the part to be reduced ſhould be preſſed obliquely toward the os ilion; in the femoral, the preſſure ought to be made directly upward, or a little toward the pubes.

When it is not reducible by the hand only, it, like the other, becomes the object of a chirurgic operation, by which the ſac is laid open, the ſtricture removed, and the prolapſed parts returned.

The inciſion ſhould be made through the ſkin, and membrana adipoſa, the whole length of the tumor; under theſe will be ſeen the tendinous faſcia, or expanſion, and immediately under that the hernial ſac; theſe being carefully divided, and the portion of inteſtine thereby denuded, it is well worth while to try if it cannot be returned without dividing the tendon, as there is a conſiderable ſpace between the os ilium and the os pubis, to manage ſuch reduction in, and as the diviſion of the tendon is not always, in this kind of rupture, ſo ſafely executed: in this there are two parts of conſequence, which lie very little out of the way of the knife, and which an operator ſhould avoid wounding: theſe are the epigaſtric artery, and the ſpermatic chord. If the diviſion of the ligament be made directly upward, the

ſpermatic chord will certainly be divided; and if, to avoid that, the knife be carried very obliquely towards the os ilium, the artery will meet with the ſame fate; and indeed if the inciſion of the ligament be made of any length, let it be made in whatever part it may, the riſque will be great of wounding one of the parts juſt mentioned, as will appear to any body who will examine them *in ſitu naturali*, and make a proper allowance for the preſſure, and diſtention of the hernial ſac.

Of the two the ſpermatic chord is certainly the moſt to be regarded, as the total diviſion of it would in all probability render the teſticle on that ſide uſeleſs. If the artery be wounded, it muſt be taken up with a needle and ligature, but the doing is not ſo eaſy as the directing it to be done: the epigaſtric artery in many men is near as large as the ſmaller carpal; departs immediately from the trunk of the crural, and, at its origin, lies in a bed of fat and cellular membrane; the ſtream of blood would be pretty briſk, and the paſſage of the needle round would certainly be troubleſome, if not hazardous from the vicinity of the crural veſſels: it may undoubtedly be happily executed, but as it muſt be attended with a good deal of trouble, and ſome riſque, it is much better to avoid the neceſſity, which I think may almoſt always be done, conſidering the large ſpace between the os ilion and the os pubis, and that that ſpace is occupied principally by cellular membrane, and fat: or if the diviſion of the ligament be unavoidable, let the operator be particularly careful to keep the extremity of the probe-pointed knife within the end of his fore-finger, held up tight juſt behind the edge or border of the tendon, and to make as ſmall an inciſion as may be neceſſary: the probe-ſciſſars, the common inſtrument in uſe for this operation, is in this caſe particularly hazardous and improper.

In all other circumſtances, this hernia, and the inguinal, are ſo ſimilar as to need no repetition.

SECT. X.

The Congenial Hernia.

THE *congenial hernia*, as it is now called, is that particular kind of hernia, in which the portion of inteſtine, or omentum, which occaſions the tumor, inſtead of being found alone in the hernial ſac (as in a common rupture) is found in contact with the naked teſticle; the bag containing it being formed by the *tunica vaginalis teſtis*.

The manner in which a common hernial ſac is formed, has already in a former chapter been related, viz. by the thruſting forth of a portion of the peritoneum through the opening in the tendon of the external oblique muſcle of the abdomen; which portion ſo thruſt forth contains a piece of inteſtine, or omentum, or both. A hernial ſac thus formed always communicates with the cavity of the belly, but never with that of the tunica vaginalis teſtis. It paſſes down anterior to the ſpermatic chord, and when it is laid open, is found to contain only a portion of gut, or caul, and a ſmall quantity of fluid.

On the contrary, the ſac of a congenial hernia is formed by the tunica vaginalis teſtis itſelf; and when it is laid open, (whatever elſe may be in it) it is always found to contain the teſticle, covered only by its proper coat, commonly called tunica albuginea.

The manner in which this is brought about, the original or early ſituation of the teſtes in a fœtus, their deſcent, their protruſion from the cavity of the belly, and the formation of the tunica vaginalis teſtis,

I have

I have deſcribed ſo much at large in two tracts already publiſhed *, that I ſhall give a very ſhort account of them in this place.

That bag which is deſigned to make the future tunica vaginalis teſtis is an originally-formed part, lies in the groin, under the ſkin and adipoſe membrane, and has an orifice always open to the abdomen of a fœtus. By means of this orifice, the teſticle at proper time deſcends into the groin firſt, and then moſt commonly into the ſcrotum; and when it has been ſome little time in the latter, the opening from the belly generally becomes cloſe, and is obliterated. By the cloſing of this paſſage, a bag or cavity is formed, which contains within it the teſticle covered only by its tunica albuginea, and which bag never afterward has any communication with the orifice into the cavity of the belly.

The time at which the teſticles are thruſt forth from the belly is very uncertain, as I have often experienced; and ſo is that of the abſolute cloſing of the ſacculus. In ſome they paſs out before birth, in ſome immediately after, and in ſome not till ſome time after; in ſome they never paſs out at all, and in others, they (that is the two) arrive in the groin, or ſcrotum, at different, and ſometimes very diſtant times. In ſhort, the intention of nature, and her proceſs, is in general regular and plain, but it is accompliſhed at different periods in different perſons, and ſometimes, like moſt other parts of the animal œconomy, it is totally prvented by accident, or mal-formation.

The intruſion of a piece of inteſtine, or omentum into the orifice of the tunica vaginalis is one of theſe accidents. By means of either of theſe, the cloſing of the paſſage is prevented, and a hernial ſac of a par-

* An account of the congenial hernia, publiſhed in 1757; and ſome obſervations on the hydrocele, publiſhed in 1762. In Dr. Hunter's Medical Comment, No. 1, may alſo be ſeen a very ingenious account of this matter, by his brother Mr. John Hunter

a particular kind formed. This ſac being really the vaginal coat of the teſtis, muſt, if that body has fallen from the abdomen, contain the inteſtine, omentum, or whatever forms the hernia, and the teſticle, in immediate contact with each other.

This is the congenial hernia; a diſeaſe unknown till within theſe few years, but by no means an infrequent one.

The appearance of a hernia in very early infancy, will always make it probable that it is of this kind; but in an adult, there is no reaſon for ſuppoſing his rupture to be of this ſort, but his having been afflicted with it from his infancy; there is no external mark or character, whereby it can be certainly diſtinguiſhed from one contained in a common hernial ſac; neither would it be of any material uſe in practice, if there was.

When returnable, it ought like all other kinds of ruptures to be reduced, and conſtantly kept up by a proper bandage; and when attended with ſymptoms of ſtricture, it requires the ſame chirurgic aſſiſtance as the common hernia.

In very young children, there are ſome circumſtances relative to this kind of rupture, which are very well worth attending to, as they may prove of very material conſequence to the patient.

A piece of inteſtine, or omentum, may get pretty low down in the ſac, while the teſticle is ſtill in the groin, or even within the abdomen; both which I have ſeen. In this caſe, the application of a truſs would be highly improper; for in the latter, it might prevent the deſcent of the teſticle from the belly into the ſcrotum; in the former, it muſt neceſſarily bruiſe and injure it, give a great deal of unneceſſary pain, and can prove of no real uſe. Such bandage therefore ought never to be applied on a rupture in an infant, unleſs the teſticle can be fairly felt in the ſcrotum, after the gut or caul is replaced; and when it can be ſo felt, a truſs can never be put on too ſoon.

As

As this kind of rupture is ſubject to ſtricture with all its conſequences, as much as that which is contained in a common hernial ſac, and therefore liable to ſtand in need of the chirurgic operation; it may be very well worth an operator's while to know, that an old rupture, which was originally congenial, is ſubject to a ſtricture made by the ſac itſelf, independent of the abdominal tendon, as well as to that made by the ſaid tendon.

Whether this be owing to the weight of the teſticle at the bottom of the ſac, and the endeavours which nature makes to cloſe the upper part of the tunica vaginalis, or to what other cauſe, I will not pretend to ſay, but the fact I have ſeveral times noticed, both in the dead and in the living. I have ſeen ſuch ſtricture made by the ſac of one of theſe herniæ, as produced all thoſe bad ſymptoms which render the operation neceſſary; and I have met with two different ſtrictures, at near an inch diſtance from each other, in the body of a dead boy about fourteen, one of which begirt the inteſtine ſo tight, that I could not diſengage it without dividing the ſac.

In this kind of hernia I have alſo more frequently found connections and adheſions of the parts to each other, than in the common one; but there is one kind of connection ſometimes met with in the congenial hernia, which can never be found in that which is in a common hernial ſac, and which may require all the dexterity of an operator to ſet free; I mean that of the inteſtine with the teſticle, from which I have more than once experienced a good deal of trouble.

When a common hernial ſac has been laid open, and the inteſtine and omentum have been replaced, there can be nothing left in it which can require particular regard from the ſurgeon; but by the diviſion of the ſac of a congenial hernia, the teſticle is laid bare, and after the parts compoſing the hernia have been reduced, will require great

great regard and tenderneſs, in all the future dreſſings, as it is a part very irritable, and very ſuſceptible of pain, inflammation, &c.

If a large quantity of fluid ſhould be collected in the ſac of a congenial hernia, and, by adheſions and connections of the parts within, the entrance into it from the abdomen ſhould be totally cloſed, (a caſe which I have twice ſeen) the tightneſs of the tumor, the difficulty of diſtinguiſhing the teſticle, and the fluctuation of the fluid, may occaſion it to be miſtaken for a common hydrocele; and if without attending to other circumſtances, but truſting merely to the feel and look of the ſcrotum, a puncture be haſtily made, it may create a great deal of trouble, and poſſibly do fatal miſchief.

By what has fallen within my obſervation, I am inclined to believe that the ſac of a congenial hernia is very ſeldom, if ever, diſtended to the degree which a common hernial ſac often is: it alſo, from being leſs dilated, and rather more confined by the upper part of the ſpermatic proceſs, generally preſerves a pyriform kind of figure, and, for the ſame reaſon, is alſo generally thinner, and will therefore require more attention and dexterity in an operator when he is to open it. To which I believe I may add, that common ruptures, or thoſe in a common ſac, are generally gradually formed, that is, they are firſt inguinal, and by degrees become ſcrotal; but the congenial are ſeldom, if ever, remembered by the patient to have been in the groin only.

SECT. XI.

Exomphalos.

THE Exomphalos, or Umbilical rupture, is ſo called from its ſituation, and has, like the other, for its general contents, a portion of inteſtine, or omentum, or both. In old umbilical ruptures, the quantity of omentum is ſometimes very great.

Mr. Ranby ſays, that he found two ells and half of inteſtine in one of theſe, with about a third part of the ſtomach, all adhering together.

Mr. Gay and Mr. Nourſe found the liver in the ſac of an umbilical hernia; and Bohnius ſays that he did alſo.

But whatever are the contents, they are originally contained in the ſac, formed by the protruſion of the peritoneum.

In recent, and ſmall ruptures, this ſac is very viſible; but in old, and large ones, it is broken through at the knot of the navel, by the preſſure and weight of the contents, and is not always to be diſtinguiſhed; which is the reaſon why it has by ſome been doubted whether this kind of rupture has a hernial ſac or not.

Infants are very ſubject to this diſeaſe, in a ſmall degree, from the ſeparation of the funiculus; but in general they either get rid of it as they gather ſtrength, or are eaſily cured by wearing a proper bandage. It is of ſtill more conſequence to get this diſorder cured in females, even than in males, that its return when they are become adult, and pregnant, may be prevented as much as poſſible; for at this time it often happens, from the too great diſtention of the belly, or from unguarded motion when the parts are upon the ſtretch. During geſtation it is often very troubleſome, but after delivery, if the contents have

have contracted no adheſion, they will often return, and may be kept in their place by a proper bandage.

If ſuch bandage was always put on in time, and worn conſtantly, the diſeaſe might in general be kept within moderate bounds, and ſome of the very terrible conſequences which often attend it might be prevented. The woman who has the ſmalleſt degree of it, and who from her age and ſituation has reaſon to expect children after its appearance, ſhould be particularly careful to keep it reſtrained.

In ſome the entrance of the ſac is large, and the parts eaſily reducible; in others they are difficult, and in ſome abſolutely irreducible. Of the laſt kind many have been ſuſpended for years in a proper bag, and have given little or no trouble. They who are afflicted with this diſorder, who are advanced in life, and in whom it is large, are generally ſubject to cholics, diarrheas, and if the inteſtinal paſſage be at all obſtructed, to very troubleſome vomitings.* It therefore behoves ſuch to take great care to keep that tube as clean and free as poſſible, and neither to eat or drink any thing likely to make any diſturbance in that part.

The cure, as propoſed by authors, is either radical, or palliative.

Celſus, Paulus Ægineta, Albucaſis, Aquapendens, Guido, Severinus, Rolandus, and others, mention a radical cure by ligature; Fab. ab Aquapendente propoſes, "aut medicamentis aut ferro umbilicum "aduere;" but after having deſcribed both methods, he lays them under ſuch reſtraints, from age, habit, ſize of the tumor, time of the year, &c. as amounts almoſt to a prohibition againſt putting them in practice at all; and it is to be hoped that no body will attempt to revive them.

* On which account they are often ſuppoſed to labour under a ſtricture of the inteſtine, when they really do not.

The methods by ligature are two; in the one, the ſkin covering the tumor is to be lifted up with the finger and thumb, or with a ſmall hook, to free it from the inteſtine underneath, and then a ligature is to be made round the baſis of the tumor, ſo ſtrict as to procure a mortification of all that part which is anterior to ſuch ligature. In the other, the ſkin is to be elevated in the ſame manner, and a needle, armed with a double ligature, is to be paſſed through the baſis of the tumor, which is to be tied above and below, or on each ſide, ſo tight as to produce the ſame effect. Previous to the drawing the ligature cloſe, it is adviſed to make a ſmall inciſion in the top of the tumor, large enough to paſs in the end of the fore-finger, and with it ſo to depreſs the inteſtine, or omentum, as to prevent their being engaged in the ſtricture.

The intention in both theſe methods is the ſame, viz. by deſtroying the lax ſkin covering the top of the tumor, to produce a cicatrix which ſhall bind ſo tight, as to reſtrain the parts from any future protruſion.

The objections to either of them are ſo obvious, that it is hardly neceſſary to ſay any thing concerning them; though in this age of quackery and credulity, I ſhould not wonder to ſee them revived, and practiſed.

In young ſubjects, and ſmall herniæ, a bandage worn a proper time generally proves a perfect cure; and in old perſons, and large tumors, it is hardly to be ſuppoſed that any body can think of any but a palliative one, the hazard of producing a mortification being ſo great.

But ſuppoſe the ſubject to be young, and the tumor of ſuch ſize, and in ſuch ſtate, as to make it unlikely that a bandage would do more than palliate; that the ſkin covering the tumor is ſo lax, as to make it improbable that it ſhould ever recover its former ſtate, and lie ſmooth, and that when it has been removed, the cicatrix ſhall bind ſo tight, as

to prevent the future protruſion of any of the contained parts; yet who can tell what may be the conſequence of this deſtruction of parts, and this indilatibility of the ſkin in a ſtate of pregnancy. I mention this, becauſe I have ſeen very terrible miſchief from the burſting of a cicatrix on the navel, during geſtation; though the ſcar was from an abſceſs, opened by incifion, and conſequently could not be ſuppoſed to be equal, either in ſize or reſiſtance, to one produced by the before-mentioned operation.

The umbilical like the inguinal hernia, becomes the ſubject of chirurgic operation, when the parts are irreducible by the hand only, and are ſo bound as to produce bad ſymptoms. But though I have in the inguinal and ſcrotal hernia adviſed the early uſe of the knife, I cannot preſs it ſo much in this; the ſucceſs of it is very rare, and I ſhould make it the laſt remedy. Indeed I am much inclined to believe, that the bad ſymptoms which attend theſe caſes are moſt frequently owing to diſorders in the inteſtinal canal, and not ſo often to a ſtricture made on it at the navel, as is ſuppoſed. I do not ſay that the latter does not ſometimes happen, it certainly does; but it is often believed to be the caſe when it is not.

When the operation becomes neceſſary, it conſiſts in dividing the ſkin and hernial ſac, in ſuch manner as ſhall ſet the inteſtine free from ſtricture, and enable the ſurgeon to return it into the abdomen, if ſound, and not adherent; but if it be gangrenous, or mortified, the altered part muſt be removed, and the fæcal diſcharge be derived through the wound; by which means, ſome few have preſerved their lives, if ſuch ſtate can be called living.

SECT.

SECT. XII.

Ventral Hernia, &c.

THIS may appear in almoſt any point of the fore part of the belly, but is moſt frequently found in or between the recti muſcles.

The portion of inteſtine, &c. is always contained in a ſac, made by the protruſion of the peritoneum. When reduced, it ſhould be kept in its place by bandage, and if attended with ſtricture, which cannot otherwiſe be relieved, that ſtricture muſt be carefully divided.

The hernia Foraminis Ovalis, I have never ſeen.

All the parts almoſt which are contained in the belly or pelvis, are by the dilatation of their connecting membranes, capable of being thruſt forth, and of producing ſwellings, all which are called herniæ.

Ruyſch gives an account of an impregnated uterus being found on the outſide of the abdominal opening; and ſo does Hildanus and Sennertus. Ruyſch alſo gives an account of an entire ſpleen having paſſed the tendon of the oblique muſcle. And I have myſelf ſeen the ovaria removed by inciſion, after they had been ſome months in the groin.

The urinary bladder is alſo liable to be thruſt forth, from its proper ſituation, either through the opening in the oblique muſcle, like the inguinal hernia, or under Poupart's ligament, in the ſame manner as the femoral.

This is not a very frequent ſpecies of hernia, but does happen, and has as plain and determined a character as any other.

It

It has been mentioned by Bartholin, T. Dom. Sala, Platerus, Bonetus, Ruyſch, Petit, Merry, Vardier, &c. In one of the hiſtories given by the latter, the urachus, and impervious umbilical artery on the left ſide, were drawn through the tendon into the ſcrotum, with the bladder; in another he found four calculi.

Ruyſch gives an accounnt of one complicated with a mortified bubonocele. Mr. Petit ſays he felt ſeveral calculi in one, which were afterwards diſcharged through the urethra.

Bartholin ſpeaks of T. Dom. Sala as the firſt diſcoverer of the diſeaſe, and quotes a caſe from him, in which the patient had all the ſymptoms of a ſtone in his bladder; the ſtone could never be felt by the *ſound*, but was found in the bladder (which had paſſed into the groin) after death.

As the bladder is only covered in part by the peritoneum, and muſt inſinuate itſelf between that membrane and the oblique muſcle, in order to paſs the opening in the tendon, it is plain that the hernia cyſtica can have no ſac, and that, when complicated with a bubonocele, that portion of the bladder which forms the cyſtic hernia muſt lie between the inteſtinal hernia and the ſpermatic chord, that is, the inteſtinal hernia muſt be anterior to the cyſtic.

A cyſtic hernia may indeed be the cauſe of an inteſtinal one; for when ſo much of the bladder has paſſed the ring, as to drag in the upper and hinder part of it, the peritoneum which covers that part muſt follow, and by that means a ſac be formed for the reception of a portion of gut or caul. Hence the different ſituation of the two herniæ in the ſame ſubject.

While recent, this kind of hernia is eaſily reducible, and may, like the others, be kept within by a proper bandage; but when it is of any date, or has arrived to any conſiderable ſize, the urine cannot be diſcharged, without lifting up, and compreſſing the ſcrotum; the

outer

outer ſurface of the bladder is now become adherent to the cellular membrane, and the patient muſt be contented with a ſuſpenſary bag.

In caſe of complication with a bubonocele, if the operation becomes neceſſary, great care muſt be taken not to open the bladder inſtead of the ſac, to which it will always be found to be poſterior. And it may alſo ſometimes by the inattentive be miſtaken for a hydrocele, and by being treated as ſuch, may be the occaſion of great or even fatal miſchief.

SECT. XIII.

Attempts toward a radical Cure.

IN the firſt ſection of this treatiſe I have ſaid, that the means uſed to obtain both a palliative and a radical cure were exactly the ſame, and that the event was dependent on many circumſtances, which a ſurgeon could neither direct nor alter; ſuch as the age of the patient, the date of the rupture, the thickneſs of the hernial ſac, the ſize of the abdominal openings, &c.

They who are unacquainted with the true nature of this diſeaſe may poſſibly be ſurpriſed at this aſſertion, and be thereby induced to believe, what has in all times been ſo confidently aſſerted, viz. that there are methods and medicines, whereby this diſeaſe may always be perfectly cured; and that the ſurgeons, either through indolence will not get information of them, or through obſtinacy will not practiſe them. If either of theſe charges was true, it muſt be the latter, for we certainly do know what attempts of this kind have been made; and if any of theſe means had really deſerved the character which has been given of them, had been ſafely practicable, or had proved generally

nerally ſucceſsful, I ſhould certainly have ſpoken of them in their proper place: but this is ſo far from being the caſe, that on the contrary however they may have been applauded by a few individuals, they have upon repeated experiment been found unfit for general practice, being either totally inefficacious, or painfully miſchievous. The majority, nay, almoſt all they who have ſubmitted to, or tried them, have remained uncured of their diſeaſe, or have been mutilated, or murdered in the attempt.

Several of theſe methods have indeed the ſanction of antiquity, and have been deſcribed and even practiſed by many of the old ſurgeons: the principal of theſe, or they which are moſt worthy of notice, are the *cure by cautery*; *the cure by cauſtic*; *that by caſtration*; *the punctum aureum*; *the royal ſtitch*; *and the cure by inciſion*.

In Avicenna, Albucaſis, Paulus Ægineta, Fab. ab Aquapendente, Guido de Cauliaco, Severinus, Theodoric, Rolandus, Serjeant Wiſeman, and others, will be found the *cure by cautery*, which is performed as follows.

After a proper time ſpent in faſting and purging, the patient muſt be put into an erect poſture, and by coughing, or ſneezing, is to make the inteſtine project in the groin as much as poſſible; when the place, and circumference of ſuch projection, is to be marked out with ink. Then the patient being laid upon his back, the inteſtine is to be returned fairly into the belly, and a red-hot cautery is to be applied according to the extent of the marked line. For this purpoſe, cauteries of different ſizes, ſhapes, and figures, have been deviſed; annular, elliptical, circular, like the Greek letter Gamma, &c. The writers who have given an account of this operation, have differed a good deal from each other, not only in the ſize and figure of the cautery, but in the depth of its effect. Some have directed it to be repeated, ſo as to denude the os pubis; others direct that the ſkin

only be deſtroyed by the iron; the cellular membrane, ſac, perioſteum, &c. with repeated eſcharotic applications. But in all of them the exfoliation * of the bone is made a neceſſary part of the proceſs; the eſchar, and ſloughs, being ſeparated, and the exfoliation caſt off, the patient is ordered to obſerve an extremely ſtrict regimen, to lie on his back during the cure, and to wear a bandage for ſome time after, in order to prevent a new deſcent of the parts, which notwithſtanding all the pain, and all the hazard the patient had undergone, he was ſtill liable to.

The cure by cauſtic ſeems to have ſucceeded to that by cautery, and is deſcribed by moſt of the ſame writers, particulary by Guido, Severinus, Lanfranc, Parey, Theodoric, Sculteus, &c.

The patient being laid on his back, and the parts returned into the belly, a piece of cauſtic is to be applied on the ſkin, covering the opening in the abdominal tendon, ſo large as to produce an eſchar, about the ſize of a half crown.

Some ſuffer this eſchar to ſeparate, others divide it, and then by the repeated applications of eſcharotics, deſtroy the membrana cellularis, with as much of the hernial ſac as can be done without injuring the ſpermatic veſſels. For this purpoſe different kinds of corroſive applications have been made uſe of: paſtes loaded with ſublimate or arſenick; the ſtirpes braſſicæ, burnt; the tithymalus; the lapis infernalis alone, or with ſuet and opium; oil of vitriol; with many others, according

* Albucaſis ſays, "Et ſcias quod quando tu non conſequeris os cum cauterio, non "confert operatio tua."

Rolandus orders the cautery to be uſed in the ſame manner; ſo do Guido, Theodoric, &c.

Brunus ſays, "Si non fuerit os conſecutum, in primâ vice, tunc itera cauterium "vice aliâ donec conſequeris; quia ſi non conſecutum fuerit os, cum cauterio, parum "confert operatio tua."

cording to the humor of the operator. But though the means are ſomewhat different from each other, the end or intention in the uſe of them all is the ſame, viz. to remove or deſtroy the ſkin and cellular membrane covering the tumor, together with a part of the hernial ſac, and by that means to procure ſuch an incarnation, as by its firmneſs, and its attachment to the bone, and parts adjacent, ſhall prevent a new deſcent of either gut or caul.

The mere relation of one of theſe methods is ſufficient to ſhock any humane, or ingenious man. The horror attending the uſe of the cautery muſt be great, to ſay nothing of the extreme uncertainty of the ſize or depth of the eſchar; the apprehenſion from the cauſtic will be leſs indeed, but the pain muſt be nearly as great, and of much longer duration.

The parts to be deſtroyed are, as I have juſt ſaid, the ſkin, the membrana adipoſa, part of the hernial ſac, and the perioſteum covering the os pubis, and this is to be accompliſhed without injuring the ſpermatic veſſels, or the tendon of the abdominal muſcle.

If the ſpermatic veſſels are hurt, an inflamed or diſeaſed teſticle will be the conſequence; if they are deſtroyed, the teſticle will become uſeleſs. If the tendon of the oblique muſcle be injured, either by the iron, or by the cauſtic, terrible ſloughs, a large ill-conditioned ſore, and a briſk ſymptomatic fever muſt be expected, which in ſome habits muſt be productive of conſiderable miſchief: and that conſiderable miſchief was often done by theſe proceſſes, may be learned from the very writers who deſcribe them.*

* Guido ſpeaking of the cure by cauſtic ſays, "In quo ſumme cavendum eſt, quod "dominus ſit de corroſivo; ſi enim indocte applicatur, febrim commovet, et accidentia mala." That great pain, defluxion on the hæmorrhoidal veſſels, and inflammation and ſwelling of the ſcrotum, were often the conſequence of theſe attempts, may be learned

If the os pubis be laid bare, whether by cautery or by cauſtic, ſome of the before-mentioned hazards muſt be incurred; if it be not, the intention will in general be fruſtrated; that is, the inteſtine will ſlip down behind the ſcar, and put the patient under the ſame neceſſity of wearing a bandage, as he lay under before he ſubmitted to ſo painful and ſo hazardous an experiment.

If the preſervation of life was the object of theſe means, ſomething might be ſaid in their vindication; the anceps remedium muſt for ever be preferable to deſperation: but that is not the caſe; they are recommended to be put in practice, when the patient's life is in no kind of danger, and are deſigned merely to ſave him the trouble of wearing a truſs, which purpoſe they can ſeldom anſwer; for it is well known, that after the uſe of the cautery, cauſtic, and every method, either propoſed for a radical cure, or uſed to reſcue a ruptured patient from death, that the inteſtine will ſlip down behind the cicatrix, and form a new bubonocele, which can only be kept up by a proper bandage.

The learned from the ſame author, who, ſpeaking of the method of applying the cauſtic, ſays, "Et ita continue fiat quouſque caro miracis tota ſit corrupta, uſque ad Didymum, "quod cognoſcitur per inflationem burſæ, et teſticulorum." And that the cauſtic has gone deep enough, he gives the following proof, "Quod cognoſcetur per majorem tumo-"rem teſticuli, et per majorem dolorem dorſi et partium poſteriorum." Brunus ſays, "Et "caye ſummâ diligentiâ, ne in horâ cauterizationis exeat inteſtinum, et comburatur." Lanfranc, ſpeaking of the ill effect of the cauſtic in ſome habits, ſays, "Et ſic multi "ſpaſmantur, et ſpaſmati ſubito moriuntur." Fab. ab Aquapendente ſays, "Quæ ta-"men chirurgiæ uti videtis, difficiles admodum ſunt, et inter ſubtiliſſimas haberi poſ-"ſunt; quo fit ut plerique patientes affectus perpetuo geſtare quam his chirurgis ſub-"mittere ſe vellent." And in another place, "Quæ porro chirurgiæ vehementem do-"lorem afferunt et ſatis difficiles ſunt." In ſhort, whoever will take the trouble of reading the old writers on this ſubject will, even from their own account, be ſatisfied, both of the pain, hazard and inefficacy of all theſe methods.

The three other means made uſe of by the antients toward obtaining a radical cure, were the *punctum aureum*, the *royal ſtitch*, and *caſtration*.

The *punctum aureum* was performed as follows. The inteſtines being emptied by purging, and the hernia reduced, an inciſion was made through the ſkin and membrana adipoſa, down to the ſpermatic proceſs. This inciſion was to be of ſuch length, as to permit the operator, either with his finger or with a hook, to take up the ſaid proceſs, and to paſs a golden wire under it; which wire was to be twiſted in ſuch a manner as to prevent the inteſtine from ſlipping down again into the hernial ſac, but not ſo tight as to intercept or obſtruct the circulation of the blood to the teſticle. Some operators preferred a leaden wire to a golden one, and others a ſilken ligature.

It may poſſibly ſeem rather uncivil to ſay, that both this and the ſucceeding operation were directed and practiſed by people who were very little acquainted with the true nature and ſtructure of the parts they operated upon, or indeed of the diſeaſe for which they preſcribed ſuch operation; but had not that been the caſe, they never could have propoſed ſo fallacious and uncertain a method of treating it: for if the wire, or whatever was paſſed round the proceſs, did not bind pretty tight, it would not prevent a deſcent of the gut, and the whole operation, though painful and irkſome, muſt become abſolutely uſeleſs; if it did bind tight, it muſt neceſſarily retard and obſtruct the circulation of the blood thro' the ſpermatic veſſels, and produce a diſeaſe of them, and of the teſticle †.

The royal ſtitch was performed in this manner: the inteſtines being emptied, and the portion which had deſcended being replaced, an inciſion

† Whoever would know the particular methods of executing this operation, may find them in Guido, Parey, Franco, Scultetus, Smaltzius, Permannus, Nuck, &c.

inciſion was made in ſuch manner as to lay bare the ſpermatic chord, about two inches in length from the abdominal opening downward. When the proceſs was freed from the cellular membrane, it was to be held up by an aſſiſtant, while the ſurgeon with a needle and ligature made a continued future, from the lower part of the inciſion to the upper, in ſuch manner as to unite the divided lips of the wound again, comprehending the cellular membrane, and thereby endeavouring to ſtraiten the paſſage, as they called it, from the belly into the ſcrotum, without injuring the ſpermatic veſſels.

The operation is deſcribed by many of the old writers,* with ſome ſmall variation from each other, both in the manner, and in the inſtruments; but all tending to the ſame end, and all proving that their idea of the diſeaſe, and of the parts affected by it, were erroneous and imperfect.

The fatigue to the patient muſt be greater in this than in the preceding operation, both on account of the large inciſion, and of the future.

In ſome habits either of them muſt be very hazardous, and in the majority of caſes, painful, troubleſome, and tedious; which circumſtances might nevertheleſs be ſubmitted to, if the cure was certain, the contrary to which did moſt frequently happen, even by the confeſſion of the very writers who propoſe and deſcribe theſe methods, and who univerſally order the long wearing a truſs after ſuch operations have been ſubmitted to.

Some, who thought that the ſtitch added unneceſſarily to the pain, have directed the inciſion to be made in the ſame manner as for the future; but, inſtead of ſewing the lips together, have adviſed that the common membrane be diſſected out pretty clean, and the ſore digeſted and

* Paulus, Albucaſis, Fab. ab Aquapendente, Guido, Rolandus, Parey, Serjeant Wiſeman, &c. &c. &c.

and incarned. This is ſo like to the operation for the incarcerated bubonocele, both in the manner of making the inciſion, and in its conſequence, as tending toward a radical cure, that it may be looked upon as really the ſame thing; and how very fallacious and uncertain that operation proves toward anſwering this end is too well known.

Both theſe, the *royal ſtitch* and the *punctum aureum*, proved often deſtructive to the teſticle, even in the moſt judicious hands, and when it got into thoſe of ignorant pretenders, it proved moſt frequently ſo; for not knowing how to perform properly what they had undertaken, and finding it much more eaſy, after the inciſion was made, to ſlip out the teſticle, they moſt commonly did ſo.

Theſe are the principal methods propoſed or practiſed by our forefathers for a radical cure of a rupture; among the writers indeed will be found ſome trifling variations from each other in the execution of them, but the intention and aim is the ſame in all, viz. to prevent a new deſcent of either gut or caul, by producing an union of the parts, through which they either did or were ſuppoſed to paſs. According to the degree of anatomical knowledge, and humanity of the propoſer, they will be found to be more or leſs rational and gentle, but are all of them painful, hazardous, and moſt frequently fallacious, and have therefore been totally diſuſed by all modern practitioners, who have either knowledge, compaſſion, or honeſty.

No diſeaſe has ever furniſhed ſuch a conſtant ſucceſſion of quacks as ruptures have; they who have had ſome ſmattering of anatomy or ſurgery, and whoſe humanity has not been their prevailing quality, have adopted one of the preceding operations, or ſomething like them; while they who have had leſs knowledge, and more timidity, have had recourſe to the more ſneaking knavery of ſpecific applications.

The

The hiſtories of prior Cabriere, Bowles, Sir Thomas Renton, Dr. Little John, &c. &c. &c. to be found in Dionis, Houſton, and other writers, will furniſh to the reader an idea of the practice and performances of ſome of thoſe who have ſtood at the head of thoſe bold promiſers: and our preſent news-papers daily ſupply us with a number of the leſſer dealers in ſpecific medicines, and new-invented bandages, by which the poor, and credulous, are gulled out of what little money they can ſpare. Operative quackery is not indeed ſo frequent, or ſo readily ſubmitted to; but I wiſh I could not ſay that more than one life has not been deſtroyed in our own time, by attempts to form and ſupport the character of an operator in this diſeaſe: to this kind of hazard indeed the poor are luckily not ſo liable, as it can only be worth the while of theſe rupture-doctors to murder thoſe who have beforehand been ſimple enough to pay them well for it.

This is a ſubject in which mankind are much intereſted, and on which a good deal might be ſaid; but as an honeſt attempt to ſave the afflicted from the hands of thoſe who have no character to loſe, and whoſe only point is money, might, from one of the profeſſion be miſconſtrued into malevolence and craft, I will not enter into it, but ſhall conclude, by wiſhing, that they who have capacity to judge of theſe matters, (which are as much the objects of common ſenſe, as any other kind of knowledge) would not ſuffer themſelves to be deluded by the impudent aſſertions of any Charlatan whatever, but determine in this as they do in many other things, that is, by the event. In ſhort, if they who have ſo much credulity, as to be inclined to believe, and truſt theſe lying impoſtors, would only defer the payment of them till they had completed their promiſes, the fallacy would ſoon be at an end.

A

TREATISE

ON THE

HYDROCELE,

OR

WATRY RUPTURE,

AND OTHER

DISEASES of the TESTICLE,

It's COATS and VESSELS;

(Illuſtrated with CASES.)

(Illustrated with CASES.)

DISEASES of the TESTICLE,

AND OTHER

MALE COMPLAINTS.

BY

ROBERT LUKE,

OF

PHILADELPHIA.

PREFACE

To the SECOND EDITION.

THE *following tract, as the title expreſſes, is deſigned as a ſupplement to one publiſhed a few years ago; one of the objections to which was, that it was defective in matter, and ought to have comprehended the falſe herniæ; they being as real diſeaſes, and requiring Chirurgical aſſiſtance as much as the true.*

This deficiency I have now endeavoured to ſupply in the beſt manner I am able.

When I began to put theſe papers in order, I did not think they would have run to ſuch a length; and when they were finiſhed, I did not know how to ſhorten them without rendering them leſs explicit.

I am perfectly ſenſible that ſome parts of them will appear prolix and diffuſe, and that ſuch manner of writing is in general very juſtly objected to; but yet cannot help thinking that ſometimes it may be excuſable, or even neceſſary.

When application is made to the judgment merely, and information is intended to be conveyed to many people of different capacities, it may become neceſſary to ſet the ſame object in ſeveral different lights; and to repeat

repeat the ſame thoughts many times in different words: to thoſe who have not been much converſant with the thing treated of, a ſtudied brevity would become a perplexing obſcurity; however ſatisfied ſuch readers might be with the ſtile of the writer, they would not be made ſufficiently acquainted with the ſubject; they might be pleaſed, but they would not be informed.

I ſhould indeed be very ſorry to have conveyed my meaning in ſuch manner as to diſguſt the judicious; but as my principal intention was to inſtruct the unknowing, my chief aim has been perſpicuity. If the learned and critical are not diſpleaſed, I ſhall be glad; if the ignorant gain any knowledge, I ſhall be much more ſo. The character of an elegant writer I make no pretenſion to; that of a ſkilful ſurgeon, and of a man who has done ſome good in the way of his profeſſion, I ſhould be extremely glad to deſerve.

With regard to this ſecond edition, all I have to ſay, is, that it has coſt me ſome time and trouble; that it contains many additions to the former; and, that I hope the reader will find it, not only a more correct, but a more inſtructive book.

CON-

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A TREATISE ON THE HYDROCELE, &c.

SECTION I.

THE various diſeaſes comprehended under the general term HERNIA, have, by ſurgeons, been divided into two claſſes; one of which they have diſtinguiſhed by the epithet *true*, the other they have called *falſe*, or *ſpurious*.

Under the firſt, they have ranged all thoſe tumors, which are produced, either by the *deſcent*, or *protruſion*, of ſome of thoſe parts which ſhould naturally be contained within the cavity of the abdomen; but which, by being diſplaced from their proper ſituation, form ſwellings in the navel, groin, belly, ſcrotum, and thigh.

By the ſecond, they mean all ſuch diſeaſes of the teſticles, their coats, and veſſels, as proceed from, or are accompanied by, the induration, inlargement, or other morbid affection of ſuch parts; or occaſion the lodgement, or accumulation, of extravaſated fluid within them.

So that what are generally called *true Herniæ* are tumors, occaſioned by the removal of certain parts from their proper and natural ſituation, ſuch parts ſtill remaining, in general, ſound, and free from diſeaſe; while thoſe termed *falſe*, are original diſorders of the parts themſelves, in which they are ſeated: a diſtinction, which is invariably true, and very neceſſary to be attended to, by all who would underſtand the real nature of each. A part of the inteſtinal canal, or of the omentum, the ſtomach, uterus, or bladder, are what moſt frequently make the contents of the former; a varicous diſtention of the ſpermatic veſſels, extravaſated blood or water, within the membranes either of the teſticle or of the ſpermatic veſſels, an inflammatory inlargement, and a ſcirrhous or cancerous ſtate of the teſtis itſelf, conſtitutes the latter.

The *true herniæ* receive their diſtinguiſhing appellations, either from the particular part of the body in which the ſwelling makes its appearance, or from what is contained within ſuch tumor; and are therefore called *inguinal*, *ſcrotal*, *umbilical*, and *ventral*; or inteſtinal and omental ruptures. The ſpurious derive their names, either from their ſuppoſed contents, as the *pneumatocele*, *hæmatocele*, and *hydrocele*; or from the alteration made by the diſeaſe in the natural ſtructure of the parts concerned, as the *varicocele*, *cirſocele*, and *ſarcocele*: to which ſome have added that inflammatory defluxion on the teſticle, commonly called *hernia humoralis*.

The *pneumatocele* is a miſtake; there is no tumor of this kind, and in this ſituation, in a living animal: it is indeed particularly deſcribed

bed by many writers, both ancient and modern, and ſaid to be a diſorder to which infants are particularly liable: but the complaint ſo deſcribed, and which nurſes and ignorant people do ſtill call a *wind-rupture*, is not what they take it for; neither is it produced by wind: it is, either a true *inteſtinal hernia*, or a ſpecies of hydrocele; which will be taken notice of hereafter. The *varicocele* (which is an inlargement and diſtention of the blood-veſſels of the ſcrotum) is very ſeldom an original diſeaſe, independant of any other; and when it is, is hardly an object of ſurgery.

The *cirſocele*, or varicous ſtate of the ſpermatic vein, though it be really a diſeaſe, and ſometimes very troubleſome to thoſe who are afflicted with it, yet is ſeldom capable of much relief, beyond that of a ſuſpenſory bandage.

SECT. II.

Of the Hydrocele in general.

THE term *hydrocele*, if uſed in a literal ſenſe, means any tumor produced by water; but ſurgeons have always confined it to thoſe which poſſeſs either the membranes of the ſcrotum, or the coats of the teſticle, and its veſſels.

The firſt of theſe, *viz*, that which has its ſeat in the membranes of the ſcrotum, is common to the whole bag, and to all the cellular ſubſtance which looſely envelopes both the teſtes. It is, ſtrictly ſpeaking, only a ſymptom of a diſeaſe, in which the whole habit is moſt frequently more or leſs concerned, and very ſeldom affects this part only *. The latter, or thoſe which occupy the coats immediately in-

* I have ſeen a true anarſarcous watry diſtention of the cells of the dartos confined to one ſide of the ſcrotum only.

veſting the teſticle, and its veſſels, are abſolutely local, very ſeldom affect the common membrane of the ſcrotum, generally attack one ſide only, and are frequently found in perſons who are perfectly free from all other complaints.

Notwithſtanding the obvious and material difference between the two kinds of diſeaſe, they have by the majority of writers been confounded together; have been conſidered as ſpringing from the ſame immediate ſource, and as requiring the ſame kind of treatment; although the one is plainly and evidently a mere ſymptom, or attendant on, a general diſorder; and the others are ſtrictly and abſolutely local complaints. This one fundamental error has been the occaſion of many others. The ſuppoſition, that all collections found in the membranes and coats of the ſcrotum and teſticles are of the ſame general kind, has produced an infinite variety of wild conjectures, concerning the particular and immediate nature and origin of them. By ſome they have been attributed to a particular indiſpoſition of the liver, kidneys, or ſpleen; by others, to a natural and neceſſary connection between the ſpermatic veſſels and thoſe of the kidney; by many the fluid has been thought to be of the urinary kind, or at leaſt that it ought to have paſſed through the kidney, but that, miſtaking its right way, it gets into the membranes of the ſcrotum and teſticles *;

while

* "Supervenit quandoque ex cauſâ aliqua externa et manifeſta, ut ictu, caſu, &c. "Crebro vero, ex latente, et non manifeſta. Quæ ab externa cauſa acceſſit, aut dex- "trum, aut ſiniſtrum renem indifferenter affligit; a latente vero, et non manifeſta "cauſa originem ducens, nunquam alium quam ſiniſtrum." Schenkius, Obſ.

"Rene, hec malo affecto, nec officio ſuo probe fungente, urinæ pars quam emulgens "hæc ad ſe pertraxit, cum ad veſicam per male affectum renem non poteſt deſcendere, "per ſeminalem in erythroideam delabitur; hoc modo hydrocelem ingenerans."

"Hinc

while others have affirmed, that all complaints of this kind are really ſymptoms of a dropſical habit; that the fluid comes from the cavity of the belly, and either paſſes thro' the peritoneum, or extends that membrane down into the ſcrotum*. Many cautions have been laid down againſt attempting the cure of one ſpecies of this diſeaſe haſtily, or without a previous courſe of medicine, upon a ſuppoſition that the defluxion is of a noxious nature; and that, by falling on this part, it frees the conſtitution from ſeveral other diſtempers‡. It has been deſcribed, as frequently producing a corrupted or otherwiſe diſeaſed teſticle †; as being nearly allied in nature to thoſe tumors which are called

" Hinc apparet et abunde manifeſtum eſt, quamobrem hydrocele haud ab externa, ſed " a latente originem ducens, non niſi in ſiniſtram membranam incidat; et hujus teſtem " affligat." Schenkius.

" Hernia aquoſa, ſi a cauſa interna et latente originem ducit, ut plurimum ſiniſtram " partem ſcroti occupat; ſeroſuſque ille humor, in membrana teſtem involvente, ery- " throiden dicta, colligitur: idque fit præcipue, rene ſiniſtro male affecto; quapropter " ſeroſos humores non attrahens, et ad veſicam non mittens, per venam ſeminariam, " quæ in iſto latere, ex emulgente procedit, in membranam erythroiden delabitur." Gul. Fab. Hildanus.

" Ne ſeroſus humor qui a rene attrahi non poteſt in abdomine retineatur." Hildanus.

" Si hernia fiat ex humoribus venientibus a renibus ad teſticulum, cognoſcitur tactu." Lanfranc.

* " Colligitur liquor in hypochondriis, qui facile deſcendit." Fab ab. Aquapend.

" Aliquando deſcendit aqua illuc ſicut deſcendit in hydropicis." Lanfranc.

‡ " Sæpe ego vidi multos per hernias liberatos eſſe a gravibus affectibus; ab empye- " mate, hydrope pulmonis, &c. unde ſi penitus ſanetur, poterit multos morbos poſtea " inferre." Fallopius.

† " Teſtis autem ſubſtantia, ab acrimonia humoris, ſucceſſu temporis corrumpitur." Schenkius.

" Sciendum eſt, quod in hernia illa, in qua continetur aqua in vagina teſtis, et " quæ aliquantiſper ſit diuturna, corruptus eſt teſtis." Fallopius.

" Ubi

called encyſted, whoſe tunics are formed out of the common membrane by mere preſſure; and as being generally accompanied with a true hernia, or deſcent of the inteſtine or omentum; which laſt (ſuppoſed) circumſtance has been gravely urged as a reaſon for not attempting a radical cure.* The ſame wanton liberty has been taken, in aſſigning different ſeats to theſe diſorders, as in accounting for their origin: every part which inveſts, or accompanies, the ſpermatic veſſels, or the teſticles, not only the tunica communis of the proceſs, and the cavity of the tunica vaginalis (the true and real ſeats of one or other of theſe diſorders) have been enumerated, but ſeveral imaginary ones have been added; firm, compact membranes have been ſplit

" Ubi paulo diutius humor iſte intus relinquitur metuendum eſt ne teſticulus ſenſim, " cum eodem corrumpatur, vel occaleſcat, atque ita ſcirrhum, vel ſarcocelen, vel can- " crum tandem ſentiat." Heiſter.

" Ne ſcilicet collectum in ſcroto ſerum per acredinem paulatim contractam partes in- " ternas, et cum primis teſticulum, corrumpat; et noxam magis periculoſam efficiet." Heiſter.

" Notandum vero aquam in ſcroto non eſſe diu relinquendam ne a mora teſtis cor- " rumpatur; vel una cum aqua adveniat hernia carnoſa et caro concreſcat." Fab. ab Aquapendente.

* The opinion of the late Mr. Cheſelden on this ſubject is ſo ſingular, and ſo little conſonant to truth, or nature, that I ſhall take the liberty to repeat his words, leſt his great character ſhould miſlead the unwary. In the laſt edition of his anatomy, p. 264, he ſays, " The true hernia aquoſa is from the abdomen, which either extends the pe- " ritoneum into the ſcrotum, or breaks it; and then forms a new membrane, which " thickens as it extends, as in aneuriſms and the atheromatous tumors: the dropſy in " the cyſt (for ſuch it properly is) rarely admits of more than a palliative cure by punc- " ture, or tapping, like the dropſy of the abdomen; and this with ſome difficulty, be- " cauſe the omentum generally, and ſometimes the gut, deſcends with it." Which is ſo far from being the caſe, that unleſs in the particular and very ſingular inſtance of a combination of an hydrocele with a congenial hernia, it never can happen; the bags or ſacs of an hydrocele, and of a hernia, being in all other inſtances totally different; and the former never having any communication with the belly.

ſplit into lamellæ; and cyſts and coats have been deviſed, which never had a real exiſtence.

If all this was matter of mere ſpeculation, and produced no miſchief in practice, it would be of no importance; but, in matters of phyſic and ſurgery, this ſeldom or never happens: erroneous ideas of the nature, origin, and ſeats of diſeaſes, moſt commonly are followed by improper methods of treating them. In the preſent caſe the abſurdity of the conjectures, concerning theſe circumſtances in the diſorder, is fully equalled by the methods of cure which have been propoſed and practiſed.

Upon a ſuppoſition, that the extravaſation of fluid was the conſequence of a dropſical habit, ſtrong purges and powerfully diuretic medicines have been preſcribed; actual cauteries have been uſed; and ligatures and inciſions made, both on the ſpermatic veſſels and in the groin, to hinder the deſcent of the water from the cavity of the belly *; aſtringent liquors and ardent ſpirits have been injected, with a view

* "Et cum totam evacuaveris aquam, cauteriza locum quem aperuiſti; et fac duo "cauteria punctualia in inguina, ex utraque parte unum, ſupra didymum; quod ſi non "cauterizes, aqua iterum redit. Sed cauteria redire materiam iterum non permittunt." Lanfranc.

"Et iterum redit niſi cauterizetur poſt perforationem. Brunus. In apertione du-"plex eſt intentio, ſcilicet aperire et prohibere ne rurſus aqua deſcendat." Fab. ab Aquapend.

"Avicennas utitur ferramentis candentibus in regione inguinis ut corrugatur pars, "ne aqua poſſet deſcendere." Fab. ab Aquapend.

"Sin autem in rene vitium non fuerit, et defluxum plane impedire volueris, inci-"ſionem, ſuperiore parte ſcroti prope inguina, fieri expedit; quandoquidem duplex "chirurgo eſt ſcopus; prior evacuare ſeroſum humorem, poſterior prohibere nec de "novo aqua in ſcrotum defluat."

"Et

a view to closing or soldering broken lymphatics; tedious and painful operations have been practised, for the eradication of imaginary cysts; directions have been given to evacuate the water at different times, lest the patient's strength should fail, or his health suffer, by its being done too suddenly; and the testicles being supposed to be frequently spoiled, by long laying in the water, castration has often been performed in the simple hydrocele.

Dr. Monro (the father) who is professor of anatomy at Edinburgh, and Mr. Samuel Sharp, late surgeon to Guy's hospital, are almost the only writers, who have sensibly and rationally explained the true nature and theory of these diseases: to them the profession is greatly obliged, for having thrown much light on the subject; and for having furnished their readers with more just ideas than any others.

SECT. III.

THE spermatic vessels, like most of the contents of the abdomen, lye behind the peritoneum, enveloped in the common tela cellulosa, or what used to be called the cellular appendix of the peritoneum. The arteries, which are two, arise from the trunk of the aorta, in the midway between the emulgent, and lower mesentery. At their origin they are very small, and, contrary to all the other arteries of the body, they seem rather to increase in diameter as they descend. In their passage downward, they impart several branches to the

" Et quia tota aqua in tunica illa, (nempe vaginali) continebatur, ita ut testiculus ei " innataret, ne in posterum denuo descenderet aqua, acu incurvato ac filo reduplicato " universam hanc tunicam (præter vasa seminalia) apprehendi et mediocriter constrinxi, " atque ligavi." Fab. Hildanus.

the cellular membrane which inveſts them; and before they arrive at the teſticles, they are divided into four or five principal ones; one of theſe goes to the epididymis, the others to the teſtis; the latter having paſſed the tunica albuginea, and being convoluted in a moſt wonderful manner, compoſe the greateſt part of the body of that gland; from theſe convolutions of the ſpermatic artery, the ſemen is ſecreted; which fluid is, after ſuch ſecretion, immediately received by thoſe particular veſſels, which late anatomiſts have agreed to call the vaſa efferentia; theſe vary in their number, in different ſubjects, being from ten to fifteen, more or leſs: when collected together, they form the globus major, or larger extremity of that body, which, from its ſituation, is called epididymis; after this, they unite into one ſingle tube, which being convoluted and contorted, in the moſt miraculous manner, conſtitutes the reſt of that ſame body: ſo that the whole of the epididymis, except that immediate point which is formed by the concurrence of the vaſa efferentia, does really conſiſt of one ſingle tube, whoſe diameter is ſaid, in no part, to exceed the eighteth of an inch, but which is contorted ſome thouſands of times; and if unravelled, and drawn out, is ſome yards in length. From the leſſer extremity of the epididymis proceeds the vas deferens, or that tube through which the ſemen is conveyed from the teſtis toward the penis; or, in other words, when this wonderful tube ceaſes to be convoluted, and puts on the appearance of one ſingle, ſmooth veſſel, it is then called vas deferens. This ariſes from the leſſer end of the epididymis, enveloped in the ſame common tela celluloſa, in which the ſpermatic artery and vein are inveſted; and when it has got juſt above the edge of the os pubis, it ſeparates from the ſaid veſſels, and paſſing down behind the peritoneum, proceeds to the inferior part of the neck of the bladder, where it depoſits the ſemen, in the receptacles appointed for that purpoſe, called the veſiculæ ſeminales.

The blood, after the ſeminal ſecretion is performed, returns back into the general maſs, by the ſpermatic vein; which on the right ſide empties itſelf into the vena cava, and on the left into the emulgent.

While the ſpermatic veſſels are within the cavity of the belly, the cellular membrane, in which they are enveloped, is much more lax and tender, and is indued with larger cells, than it is on the outſide of the ſame cavity. As they go *under* the tranſverſalis, and obliquus internus muſcle, and *through* the obliquus externus, they receive a conſiderable addition of cellular membrane from the adjacent parts; and, when they have paſſed through the tendinous aperture of the laſt-named muſcle, they, together with their cellular tunic,* are covered by, and enveloped in, that expanſion of muſcular fibres, called the cremaſter.

The

* The paſſage of the ſpermatic veſſels *under* two of the muſcles, and *through* the third, is a circumſtance of much importance, and what every practitioner ought to be well acquainted with.

The common doctrine is, that in each of the oblique muſcles and in the tranſverſalis is a tendinous aperture, for the tranſit of the ſpermatic chord; and theſe ſuppoſed openings are called the *rings*. This is a miſtake, which even ſome very modern writers in anatomy have fallen into; and leſt their word ſhould not convey an idea ſufficiently erroneous, ſome of them have given us drawings of all theſe openings in regular gradations, above and behind each other. Nothing can be more falſe than ſuch repreſentation: the ſpermatic veſſels do never paſs *through*, but always *under* the tranſverſalis and obliquus internus, at ſuch diſtance as never to be affected by their action, or to ſuffer any ſtricture or ſtrangulation from them. On the contrary, the ſpermatic chord always paſſes through an opening made for that purpoſe in the tendon of the obliquus externus; the action of which it is liable to be affected by; and when it is accompanied by a portion of inteſtine (as in the caſe of an hernia) it is this tendinous aperture which produces the ſtricture, the ſymptoms, and the hazard. A circumſtance of great conſequence for every man to know, who may ever be called upon to operate on a ſtrangulated hernia.

The membrane ſurrounding all that part of the ſpermatic veſſels, which is on the outſide of the abdomen, is called the tunica communis, or tunica vaginalis of the chord; and is (as has already been ſaid) merely cellular; totally void of all other cavity than its cells; firmly adherent to the ſurface of the ſaid veſſels, in every part; and plentifully furniſhed with lymphatics.

It is of very great importance to have a juſt idea of the ſtructure of this part of the funiculus ſpermaticus; the old term, tunica vaginalis, conveyed a very falſe one: it implied, that the veſſels were contained within it, as in a ſheath, and that, if the ſaid veſſels were not there, this coat would form an empty bag, conſiſting of one cavity only; than which nothing can be more untrue*.

This is one great ſource, from whence many of the errors, which have been committed in the deſcription of ſuch diſeaſes, as have (or are ſuppoſed to have) their ſeat in this part, have ſprung; and therefore I take the liberty of repeating, that this tunic has no one particular cavity, but is a mere cellular membrane throughout its whole extent; and that it terminates, in a great meaſure, juſt above the epididymis, though a continuation of it may be traced on the ſurface of the tunica vaginalis teſtis.

The coats of the teſticle are two only; *viz.* the tunica vaginalis, or that bag which looſely inveſts it, without any adheſion to it, except

* Even M. de la Faye, whoſe notes on Dionis have rendered the works of the latter more uſeful, has fallen into the common miſtake with regard to this tunic, by ſuppoſing both it and the vaginalis to be formed out of the ſame membrane, and allotting a cavity or bag to the former. "Il faut remarquer, que la tunique vaginale, et la gaine du cordon ſpermatique ſont une continuation du tiſſue celluleux du peritoine, qui s'allonge pour enveloper le teſticule; a l'endroit, ou cette continuation s'elargit, la nature a formi une cloiſon qui empeche la communication qui ſe trouveroit entre l'interieur de la gaine du cordon ſpermatique, et celui de la tunique vaginale." DE LA FAYE.

in one particular part; and the tunica albuginea, or that membrane, which is the immediate and proper covering of its vaſcular ſtructure. A true and clear idea of theſe is abſolutely neceſſary to the right underſtanding the diſeaſes to which this gland is ſubject. In order to obtain ſuch idea, the teſticles muſt be examined, not only in an adult ſtate, but in the infantine, and in that before birth alſo; each of theſe ſtates having its peculiarities, and all tending to explain the true nature of ſuch maladies, as it is frequently ſubject to.

The teſticles of the human ſpecies are always formed within the cavity of the belly, and remain there until or very near unto the time of birth. While they are within the abdomen, they are covered by one coat only; which coat firmly adheres to the vaſcular ſtructure of them, and is evidently derived from the peritoneum, in the ſame manner as the outer coat of each of the viſcera of the ſaid cavity is. Their ſituation, during the firſt months, is higher than in the latter; and as the fœtus increaſes in ſize, they ſlip gradually lower. Within the cavity of the abdomen, on each ſide, a little below the teſtes, is a ſmall opening, or orifice, which leads immediately into a ſmall, but firm membranous bag, or cyſt, whoſe upper part, or neck, paſſes through the opening in the tendons of the obliqui externi muſcles; while its lower part, or ſacculus, lies on the outſide of the ſaid muſcles in the groin, enveloped in the common tela celluloſa. Theſe orifices are always open until birth; and, moſt frequently, for ſome while after; during all which ſpace of time, the ſaid ſacculi have free and open communication with the cavity of the belly.

By means of theſe orifices, the teſticles paſs from the cavity of the abdomen, thro' the tendinous apertures, into the ſacculi in the groins; but the time in which they make this tranſit is by no means certain; ſometimes it is juſt before birth, ſometimes juſt after, ſometimes they drop immediately into the ſcrotum, and ſometimes they remain a conſiderable

ſiderable time in the groins; and it now and then happens, that they never paſs through the muſcle at all, but remain for ever within the belly. Theſe are a kind of luſus naturæ; but in the ordinary courſe, they ſoon paſs from the groins into the ſcrotal bags, the communication between the ſaid bags and the belly continuing open ſome little time longer.

When the teſticles are got fairly down into the ſacculi, if the ſaid ſacculi be laid open, it will appear that the teſticles are looſely enveloped by them, in ſuch a manner as to be perfectly free from all coheſion, except in one part, where this bag and the proper coat of the teſticle (the albuginea) are ſo firmly united, as to be plainly and demonſtrably a continuation of one and the ſame membrane. And while the communication with the belly continues free and open, if the ſacculi be divided from the bottom upward, it will as evidently appear, that the membrane of which they are compoſed is a continuation, or proceſs, of that part of the peritoneum which lines the muſcles of the abdomen.

Some time after birth, the necks of theſe ſacculi become cloſe and impervious; and from that time all communication between their cavities and that of the belly ceaſes. The time when this happens is various and uncertain; I have ſeen them perfectly cloſed within a week, and open at the end of two months, nor do they both neceſſarily become cloſe at the ſame time, in the ſame ſubject.

It ſometimes happens, that while theſe paſſages are open a piece of inteſtine inſinuates itſelf into one of them, and, preventing its cloſing, produces what Haller calls a congenial hernia; a diſeaſe which, though a modern diſcovery, has always been very frequent. It alſo ſometimes happens, that the ſpermatic veſſels not being ſufficiently cloſed, one of the teſticles reſts in the groin, juſt without the opening in the abdominal muſcle, and by not becoming pendulous in the ſcrotum, the orifice

of

of the neck of the faceulus is not closed at all; even though no portion of gut or caul has got into it.

When these orifices have been once perfectly closed, there never is any future communication between the cavities of the facculi and that of the belly; nor can any thing solid or fluid (however small in size or quantity) ever, after this period, pass from the one to the other. The upper part, or neck, now loses all appearance of a distinct canal, and the lower part, or sac, loosely invests the testicle, and its epididymis, without any adhesion, except in the hinder part. The inside or cavity of this sac is constantly kept moist, by the exudation of a fine fluid; which fluid is as constantly absorbed: so that while these parts enjoy a sound healthy state, the fluid is no more in quantity, than what just serves to lubricate and keep moist the surfaces of both membranes, and thereby prevent any unnatural cohesion of them with each other.

From these premises, the following inferences, serving to point out and explain the true nature and seat of some of the diseases in question, may, I think, be deduced.

1. That the facculi, or bags, found in the groins, are originally-formed parts.

2. That they are placed there for the future reception of the testicles; and that when the upper part, or neck, of one of them becomes close and impervious, the lower part, or facculus, constitutes and forms what is properly called the tunica vaginalis testis; which is therefore a true and original process of the peritoneum.

3. That of all the parts contained within the scrotum, these facculi are the only ones which ever naturally communicate with the cavity of the belly.

4. That, after a certain space of time, that communication ceases.

5. That

5. That whatever fluid may be ſhed from the ſpermatic veſſels, or collected, or extravaſated, in the cells of the tunica communis, or in thoſe of the dartos; yet no part of ſuch fluid can be derived from, or received into, the cavity of the tunica vaginalis teſtis.

6. That a total failure of the ſecretion of that fine fluid, which ſhould moiſten the inſide of the vaginal tunic, and the outſide of the albuginea, muſt be followed by an unnatural coheſion of theſe membranes with each other; and either a partial or total abolition of the cavity of the former.

7. That if more of this fluid be depoſited than the abſorbent veſſels can take up, or if the abſorbent veſſels do not execute their office, ſuch fluid muſt be accumulated within the cavity of the ſaid tunic; from which there being no natural outlet, the conſequence muſt be a gradual diſtention and inlargement of it.

8. That the natural communication between the cavity of the tunica vaginalis and the belly, not being ſhut until ſome ſpace of time after birth, it may become cloſe at its upper part, while there is a quantity of fluid in the lower, too large for the abſorbent veſſels to take up immediately; and conſequently, that ſuch infant will, until that office be executed, labour under a true hydrocele of the tunica vaginalis teſtis; a caſe, which is very frequent, though generally miſtaken for a wind-rupture.

And 9, That the fluid of that kind of hydrocele, which is formed by the ſac of a congenial hernia, muſt be lodged within the cavity of the vaginal coat; while all collections of ſerum, in the ſacs of all other kinds of herniæ, muſt neceſſarily be perfectly diſtinct from the ſaid tunic.

I ſhould now proceed to the examination of each diſtinct ſpecies of hydrocele; but will intrude upon my reader's patience while I mention a cir-

a circumſtance or two, relative to the paſſage of the teſticle from th belly into the ſcrotum; and which, as a practitioner, he may poſſibly think worth his attention.

I have ſaid, that the time in or at which the teſticles paſs from the belly, through the groin, into the ſcrotum, is by no means certain; that it varies in different people; that even in the ſame perſon, the two teſtes do not always paſs down at the ſame time; that ſometimes both of them, ſometimes one, remains within the belly, or in the groin, for a conſiderable ſpace of time after birth; and that it now and then happens, that one or both of them, never get into the ſcrotum at all.

I do not know any particular inconvenience ariſing from the detention of a teſticle within the cavity of the belly; but the lodgment of it in the groin, not only renders it liable to be hurt by accidental preſſure, &c. but when it is ſo hurt may be the cauſe of its being miſtaken for a different diſeaſe, and thereby occaſion its being very improperly treated. To which conſiderations, this may be added, that there is no kind of diſeaſe, to which the teſticle is liable in its natural ſituation, but what may alſo affect it, in any or all its unnatural ones.

CASE I.

I WAS ſent to in a great hurry, from the neighbourhood of Limehouſe, and deſired to bring with me, whatever I might want for the operation of a bubonocele. I found a young, healthy, ſeafaring man, lying acroſs his bed, and complaining of moſt acute pain in his groin and back. He told me, that "in the forenoon of the day before, being at work on board his own veſſel, he fell, and ſtruck his groin againſt a piece of timber, with great violence; that it gave him

ſuch

ſuch exquiſite pain, that he fainted away; that his groin became immediately ſwollen to a very conſiderable degree; that as ſoon as he could get home, he applied to his apothecary, who bled him, put him to bed, and pulticed the tumor; that he paſſed the night without ſleep, and in great agony; that when his apothecary came to him the next morning, he (the patient) informed him of a circumſtance, which, in his confuſion, he had forgot the night before, *viz.* that he had long had a rupture on that ſide, which had never been perfectly returned; that, upon receipt of this information, the apothecary had bled him again, and had taken ſome pains to return the rupture: but finding that he made no progreſs, and that his attempts produced great increaſe of pain, he had deſiſted, and had given him two glyſters, and a purge; neither of which occaſioning ſuch diſcharge as he expected, and a kind of blackneſs now beginning to appear on the part, he deſired immediate aſſiſtance." By the time this account was finiſhed, the apothecary came in, and confirmed it.

The pain was exquiſite; and while I was aſking the patient a few queſtions, he became very ſick, and vomited. The groin and ſcrotum were much ſwelled, and very hard; but the general figure and appearance of the tumor did not appear to me like that of a bubonocele: inſtead of pointing obliquely from the ilium toward the pubes, it lay, as it were, acroſs the groin: the ſcrotum was full and large; but I thought it felt much harder than I had ever found a piece of inteſtine do; and with regard to the alteration of color, I cannot ſay it gave me much uneaſineſs; for it was not at all like the effect of mortification, but had all the appearance of an extravaſation, or echymoſis. On the other hand, the man had not had a fair ſtool for three days; he had been very ſick, and had vomited; his belly was tight, hard, and painful; and his pulſe much too quick. From examination of the tumor, I could get very little information; for the

pain was ſo exquiſite, that he could not bear the ſlighteſt touch: however, from what examination I could make, it appeared to me, that if this was an inteſtinal hernia, it was ſuch a one as I had never yet met with; and nothing but the circumſtance of his having worn a truſs formerly, by the direction of a ſurgeon of character, could have induced me to have entertained ſuch ſuſpicion. I enquired again concerning this rupture, and was told, that he had worn a truſs for it the firſt four years of his infancy, but that it never kept the gut totally or perfectly up; and that as he grew bigger, and ran about, he was obliged to leave it off, on account of the pain it gave him: that ſince he had left it off, he had not obſerved any, or very little, alteration in the tumor, (none in its ſituation, though a little in its ſize;) and that it had never given him any trouble or uneaſineſs, if he did not handle it, or kept the waiſtband of his breeches and his watch from preſſing it. All this was far from being ſatisfactory: and as the preſent ſtate of the parts was ſuch, as was by no means favourable for an operation, I determined, previous to any other attempt, to try what a briſk cathartic would produce. A ſtimulating glyſter was immediately thrown up, and a ſolution of an ounce and a half of Glauber's ſalts in two ounces of inf. ſenæ ſwallowed, which, in little more than an hour, produced ſo plentiful a diſcharge, that the belly became ſoft and eaſy, and we were perfectly free from all apprehenſions of a ſtricture. Fomentation, pultice, *&c.* were frequently applied to the tumor, which in three or four days began to ſubſide; and in about ſeven or eight, the ſcrotum was ſo unloaded, as to permit eaſy and accurate examination; by which means we were ſatisfied, that it contained no teſticle. Upon mentioning this circumſtance to the patient, he ſaid, that he never had one on that ſide. This declaration was a ſolution of all difficulties, and of all the appearances. When all the effects of the blow were removed, there

appeared

appeared in the groin, juſt on this ſide of the opening in the abdominal tendon, a teſticle of natural ſize and figure; which teſticle, by being much bruiſed, had cauſed all the miſchief.

CASE. II.

A Poor man came to St. Bartholomew's hoſpital, and deſired aſſiſtance for a ſwelling in his groin; for which he had, for a month before, been taking jeſuits drops and other quack medicines, till he had not a farthing left. Upon removing an adheſive plaſter, I found a tumor which was large and painful; but at the ſame time ſo moveable, as to be very unlike any affection of the inguinal glands. The account which the man gave was, that "he had always had a lump in that groin, and never any teſticle on that ſide; that when young, he had worn a truſs for it, upon a ſuppoſition of its being a rupture; that when he came to work for his living, he could no longer bear the uneaſineſs which the truſs gave him, and therefore had left it off for years: that ſince that time he had never perceived any material alteration in the tumor, nor had it ever given him any trouble, till he had got a clap about two months before; upon the ſudden diſappearance of which, the lump in his groin became large and painful."

In ſhort, the man had got a hernia humoralis of the teſticle in his groin; which, by means of proper treatment, bleeding, cataplaſm, and reſt, he ſoon got well of.

CASE III.

A Middle-aged man came to St. Bartholomew's, for advice for a tumor in his groin.

He was apparently in good health; the tumor was of an oval or egg-like form, indolent when not preſſed, perfectly moveable, lay juſt in the groin, and had by more than one perſon been miſtaken both for bubo and bubonocele. When handled or preſſed rudely in conſequence of the latter opinion, it was painful for ſome hours after; and the pains (to uſe his own words) always ſhot up into his back. It was on the left ſide; on which ſide there was no teſticle in the ſcrotum, nor had there ever been one; but on the right ſide every thing was as it ſhould be. He ſaid, that within two years it had been conſiderably enlarged; and that it now was become very troubleſome to him.

It appeared very plainly to me, that the tumor was cauſed by the left teſticle; which teſticle was in a diſeaſed ſtate, but very fit for, and very capable of extirpation. I adviſed the man to ſubmit to the operation, and he had complied; but the late Mr. Griffiths (one of our then aſſiſtants) coming into the ward, I deſired him to look at the caſe. Whether he did not attend to all the circumſtances, or for what other reaſon, I know not; but he took it into his head, that it was a tumor of another kind, that might be removed by internal medicine; and diſſuaded the man from undergoing what I had propoſed: upon which I did not take him into the hoſpital.

Some months after, the ſwelling becoming larger and more troubleſome, he applied to St. George's hoſpital. The gentlemen there

gave

gave him the ſame opinion, and the ſame advice which I had given him; he ſubmitted, and got a cure, by the removal of a teſticle which had never been lower than his groin, and which was now become ſcirrhous.

CASE IV.

THE late Mr. Hollingworth deſired me to go with him to ſee a patient in the neighbourhood of Clerkenwell. It was a man, about fifty-five years old, who had a large ulcerated cancerous tumor in his right groin, with high callous edges; it always diſcharged a large quantity of a moſt offenſive gleet; at times it bled profuſely, and was always extremely painful.

The patient ſaid, that when firſt it became troubleſome, he had ſhowed it to two eminent rupture-curers; one of whom ſaid, that it was a piece of caul, and offered, for twenty guineas, to cure him by cutting it out: the other, (more modeſt, or leſs hardy), only ſold him two bandages for it; neither of which he could ever wear.

When Mr. Hollingworth carried me to ſee it, it had juſt been left by a cancer-curer, who had applied to it an eſcharotic; and which, by the patient's account, as well as by the appearance of the ſore, had made terrible havock.

During all this time, no one who had ſeen him (and what is ſtill more remarkable) not even the patient himſelf had remarked, that in that ſide of the ſcrotum he had no teſticle.

The ſtate, both of the man and of the ſore, forbad any chirurgical proceſs; and my advice to him was to dreſs the ſore lightly, and have recourſe to tinct. thebaic: for eaſe: which advice he followed, during the ſhort remainder of his life.

When

When dead we examined him, and found that the diſeaſe conſiſted in a cancerous teſticle lying in the groin; the ſpermatic veſſels of which were varicoſe, and knotty all the way up to the kidney, having here and there a bladder of yellow ſerum in the cellular membrane: the lymphatic glands about the vertebræ of the loins were diſeaſed, as was the liver; and on the ſurface of the right kidney was a collection of very offenſive ſanies.

SECT. IV.

The Anaſarcous Tumor of the Scrotum.

THE ſcrotum is the common receptacle of both the teſticles, and conſiſts of the cuticula, cutis, and what all the anatomiſts have now agreed to call the dartos; which is a looſe cellular membrane, perfectly void of fat, and whoſe cells or cavities communicate with each other, with the utmoſt freedom through every part.

As this membrane has no immediate communication with the cavity of the abdomen within the peritoneum, it is plain, that whatever kind or quantity of fluid may be depoſited in it, it cannot be derived from the ſaid cavity, even though the patient ſhould labour under a true aſcites; but as its cells have a free intercourſe with thoſe of the general cellular membrane all over the body, they will be liable to be affected by all thoſe diſorders which have their ſeat in that membrane; that is, by all diſorders proceeding from a low impoveriſhed ſtate of blood, from a deficiency of the urinary ſecretion, or from non-execution of the office of the abſorbent veſſels; and conſequently, in anaſarcous and leucophlegmatic habits, will become the ſeat of a watry extravaſation.

This

This watry ſwelling of the ſcrotum, although it is moſt frequently a ſymptom of a dropſical habit, and very often accompanies both the general anaſarca, and the particular collection within the abdomen, called the aſcites, yet, even in the latter caſe, neither is, nor can be, derived from the cavity of the belly, but is confined to the tela cellulosa, which lies on the outſide of the peritoneum: the water derived from hence diſtends the ſcrotum, in the ſame manner, and for the ſame reaſons, that it often does the legs and feet. The cells of the dartos being large and abſolutely void of fat, and the ſkin which covers them being extremely dilatable, and giving way for a larger influx into this part than into moſt others, has indeed occaſioned its being taken notice of as a particular diſeaſe, though it is moſt properly a ſymptom only.

This being the caſe, and the true method of cure conſiſting in an internal medical proceſs, it has been, I think, improperly ranked among the ſpecies of hydrocele; though the nature of the contents will certainly admit the uſe of the word.

It is indeed a diſeaſe, which properly belongs to the phyſicians: but as it is of ſome conſequence, to be able to diſtinguiſh it from other diſorders affecting the ſame, or the neighbouring parts, and as ſurgeons are often called upon to aſſiſt in alleviating ſome of the inconveniences which this defluxion produces, it cannot be amiſs in this place, to give a ſhort account of it, and of the moſt proper chirurgical method of attempting its relief.

It is an equal, ſoft tumor, poſſeſſing every part of the cellular membrane, in which both the teſticles are enveloped, and conſequently is generally as large on one ſide as on the other; it leaves the ſkin of its natural colour; or, to ſpeak more properly, it does not redden or inflame it; if the quantity of water be not large, nor the diſtention great, the ſkin preſerves ſome degree of rugoſity; the tumor has a doughy

kind

kind of feel; eaſily receives, and for a while retains the impreſſion of the fingers; the raphe or ſeam of the ſcrotum divides the ſwelling nearly equally; the ſpermatic proceſs is perfectly free, and of its natural ſize; and the teſticles ſeem to be in the middle of the loaded membrane. This is the appearance, when the diſeaſe is in a moderate degree. But if the quantity of extravaſated ſerum be large, or the diſeaſe farther advanced, the ſkin, inſtead of being wrinkled, is ſmooth, tenſe, and plainly ſhews the limped ſtate of the fluid underneath: it is cold to the touch, does not ſo long retain the impreſſion of the finger, and is always accompanied with a ſimilar diſtention of the ſkin of the penis; the preputium of which is ſometimes ſo enlarged, and ſo twiſted, and diſtorted, as to make a very diſagreeable appearance. Theſe are the local ſymptoms: to which it may be added, that a yellow countenance, a loſs of appetite, a deficiency of urinary ſecretion, ſwelled legs, a hard belly, and mucous ſtools, are its very frequent companions.

The cure of the original diſeaſe comes, as I have already ſaid, within the province of the phyſician, and requires a courſe of internal medicine: but ſometimes the loaded ſcrotum and penis are ſo troubleſome to the patient, and in ſuch danger of mortification, that a reduction of their ſize becomes abſolutely neceſſary; and at other times a derivation, or diſcharge, of the redundant extravaſated ſerum from this part, is ordered as an aſſiſtant to the internal regimen.

The chirurgical means in uſe for this end is called in general ſcarification; a term, whoſe preciſe ſenſe has by no means been ſettled; by which it has now and then happened, that a general order being given, and the particular method of executing it being left to the choice of thoſe who have not been ſufficiently acquainted with this kind of buſineſs, much hazard has been incurred, and conſiderable miſchief done, which might have been avoided.

The

The means of making this diſcharge are two, *viz.* puncture and inciſion: the former is made with the point of a lancet; the latter with the ſame inſtrument, or with a knife.

The generality of writers on this ſubject have ſpoken on the two methods in ſuch a manner, that a practitioner, who had ſeen but little of either, would be inclined to think, that it was a matter of great indifference, which we ſhould make uſe of; and that the ſafety and utility of each were equal: which is by no means the caſe.

The intention of the uſe of either is, by a diſcharge of extravaſated ſerum, to alleviate the preſent uneaſineſs; and, by reducing the ſize of the ſcrotum, to render it leſs troubleſome, and leſs likely to mortify. In ſome few inſtances it has indeed happened, that this drain has proved a radical cure of the original diſeaſe; but that has been accidental, and is not in general to be expected. The intention is generally palliative; and, if the patient lives, is moſt likely to require repetition: therefore, if there be any difference between the two methods, with regard either to eaſe or ſafety, there can be no doubt which ought to be preferred.

All wounds of membranous parts, in anaſarcous or dropſical habits, are neceſſarily both painful and hazardous; they are apt to inflame, are very difficultly brought to ſuppuration, and will often prove gangrenous in ſpite of all endeavours to the contrary. But the larger and deeper the wounds are, the more probable are theſe bad conſequences. Simple punctures, with the point of a lancet, are much leſs liable to be attended by them, than any other kind of wound; they generally leave the ſkin eaſy, ſoft, cool, uninflamed, and in a ſtate to admit a repetition of the ſame operation, if neceſſary. Inciſions create a painful, crude, hazardous ſore, requiring conſtant care. Punctures ſeldom produce any uneaſineſs at all; and ſtand in need of only a ſuperficial pledgit, for dreſſing.

Now, although there is ſo very material a difference in the ſymptoms and trouble attending the two methods, yet is there none in their effect: the communication of the cells of the dartos with each other is ſo free, through every part of it, that punctures made with the fine point of a bleeding lancet, into the moſt ſuperficial of them, will, as certainly and as freely, drain off all the water, as a large inciſion, without any of its inconveniences or its hazard. Neither the one nor the other will cure the original diſeaſe, unleſs by mere accident: they are both made, with a deſign to cure only the local one. The ſame habit and conſtitution remaining, the ſame effect will in general follow, and the ſame relief be again neceſſary. The eaſe, the freedom from bad ſymptoms, or from danger, and the ſtate in which the parts are left, render one method practicable at all times, and capable of being repeated as often as may be thought neceſſary: the fatigue, pain, confinement and hazard, which moſt frequently attend the other, make one experiment in general as much as moſt people chuſe to ſubmit to, or indeed have an opportunity of complying with.

CASE V.

A Man about fifty-five years old, who had lived freely, was afflicted with an anaſarcous tumor of his belly, legs, thighs, ſcrotum and penis, accompanied with the general ſymptoms which moſt frequently attend ſuch complaints, *viz.* proſtration of appetite; little, and that high coloured, urine; a hard belly; and a bloated face.

He had taken many medicines by the direction of a phyſician in the country, and more than one quack-remedy ſince he had been in London; but to no purpoſe: the watry load increaſed daily, and the

ſwelling

ſwelling of the penis and ſcrotum became ſo troubleſome, as to prevent his wearing breeches.

In theſe circumſtances, a perſon who attended him in the capacities of apothecary and ſurgeon, propoſed to draw off the water by an inciſion on each ſide of the ſcrotum; to which the patient conſented. The inciſions were made, and in a few hours the ſcrotum was empty and flaccid.

At the diſtance of five days from this operation, his ſurgeon died, and I was deſired to viſit him.

I found him in bed, with a painful, foul, undigeſted ſore, on each ſide of the ſcrotum; which, though it had at firſt been emptied by the inciſion, was now again conſiderably loaded with ſerum, but at the ſame time hard and inflamed: the edges of the wounds were livid, the diſcharge from them was a diſcoloured gleet; and the pain was ſo great, that the man could get no reſt; his pulſe was frequent, hard and ſmall; his breathing not perfectly free; his urine little, and high-coloured; his thirſt very troubleſome; his belly hard and tight: and having taken an opiate every night from the time of the operation, he had not had a ſtool for three days paſt.

I dreſſed the inciſions with a ſoft digeſtive; and covering the whole ſcrotum with a warm pultice, tied it up in a bag-truſs; directed a glyſter to be thrown up immediately, and a purge to be taken the next morning: from which in the following day he had four or five ſtools, and by which his reſpiration was relieved, and his belly rendered ſofter.

Next day the inflammatory hardneſs of the ſcrotum ſeemed to be going off, but to be ſucceeded by an emphyſematous kind of tumefaction; and in four days from that of my firſt viſit to him, the whole bag was in a ſtate of mortification, notwithſtanding the conſtant uſe of fomentation, cataplaſm, *&c.*

Having already taken a large quantity of medicine of different kinds, it was with much difficulty that I could prevail on him to hear of any more: but upon making a true repreſentation to him of the ſtate of his caſe, and of his imminent hazard, he conſented to take the bark, with ſome confect. cardiac. and tinct. rad. ſerpent. every three or four hours.

By putting a tea-ſpoonful of brandy into each doſe, it kept upon his ſtomach. At the end of three days, the pain and ſoreneſs were conſiderably leſſened; and on the ſixth he got a little quiet ſleep without any opiate: on the ninth the mortified parts ſeemed inclined to ſuppurate, and the gleet was ſmall, in compariſon of what it had been; on the twelfth there was an appearance of tolerable good matter from the edges; on the fifteenth a laudable ſuppuration was eſtabliſhed, and the mortified parts were every where looſe and falling off. Inſtead of a ſmall quantity of high-coloured urine, he now made what was nearly equal to his drink, and that very well-conditioned; and the watry extravaſation in his legs and thighs was conſiderably diminiſhed.

He now began to nauſeate the bark, in the form in which he had hitherto taken it; it was therefore changed for another, which he took at larger intervals; and, to aſſiſt his urinary diſcharge, his apothecary gave him an infuſion of the cineres geniſtæ and horſe-radiſh, which anſwered the purpoſe very well.

The whole ſcrotum and dartos caſt off in a large ſlough, and left the tunicæ vaginales of both teſticles as bare and clean as if they had been diſſected: theſe were ſoon covered by an incarnation, which ſupplied the place of the ſcrotum tolerably well; and by perſiſting in the uſe of the ſame remedies for a few weeks longer, he was reſtored to perfect health.

CASE VI.

A Man, not exceeding forty, who had drank freely of ſpirituous liquors, was thereby brought into the ſame circumſtances as the patient in the preceding caſe; that is, his countenance was yellow and bloated; his legs, thighs, ſcrotum and penis, loaded with a watry tumor; he had little or no appetite; and made a very ſmall quantity of high-coloured urine.

Internal remedies having been ineffectually tried for ſome time, he was adviſed to have an inciſion made on each ſide of the ſcrotum; by means of which, all the ſwelling, both of it and of the penis, was immediately removed, and the patient much pleaſed.

On the fourth day from the operation all diſcharge of ſerum ceaſed, and the wounded part ſwelled, inflamed, and became very painful. Fomentation, cataplaſm, and proper digeſtive dreſſings were uſed, but without any relief from the pain, or any beneficial alteration in the appearance of the ſores. On the ſixth day from that of the inciſion, I was deſired to meet the gentleman that had the care of him. I found that the hard inflammatory ſwelling, which a day or two before had occupied the whole ſcrotum, was now gone off, and that it was become flabby and livid, eſpecially about the inciſions.

I propoſed taking the cortex, but it was not complied with; nor do I know what the medicines were which he did take, neither myſelf nor his attendant ſurgeon being conſulted on that head. Warm ſpirituous fomentations, with proper pultice and dreſſings were continued, but to no purpoſe. I ſaw the patient each morning, for four days; during which, he got little or no reſt, and complained of great pain and burning heat within his belly: the watry extravaſation in his thighs and legs increaſed daily; the whole ſcrotum and ſkin of the penis

nis became black, and mortified, as did alſo the part of the pubes; and, on the eleventh day from that on which the inciſion was made, he died.

CASE VII.

A Man, about forty-five years old, by name Corby, who was a patient in St. Bartholomew's Hoſpital on another account, ſhewed me a ſwelling on the left ſide of his ſcrotum. It was large, full, tight, and had all the ſymptoms and appearances of an hydrocele of the tunica vaginalis, *viz.* the fluctuation of the fluid, the freedom of the upper part of the proceſs, and the concealment of the teſticle. I thought myſelf ſo clear in the true nature of the diſeaſe, that, without any ſcruple, I pierced it with a ſmall trochar in the lower and anterior part, and thereby let out about two ounces of limpid water; but could by no means draw off any more, though I preſſed a probe up through the cannula, and uſed every other means proper to obtain it.

I withdrew the cannula, and examined the ſwelling again; which was but little diminiſhed by what had been done: but though it was not much decreaſed in ſize, it was conſiderably altered in appearance. I could now very plainly diſtinguiſh the teſticle, and was convinced, that the whole diſeaſe was confined to the cells of the dartos. In ſhort, it was (what I had never ſeen before) an anaſarca of that membrane, on one ſide only; having a certain quantity of the water in one cyſt or bag, and the reſt diffuſed through the cells in the uſual manner: the latter made all the tumefaction, which remained after tapping; and the former had concealed the teſticle.

Being now truly ſatisfied of the nature of the caſe, I made an inciſion, about an inch long, through the ſcrotum into the loaded dartos; intending

intending thereby to drain off the water, and, by procuring a ſuppuration, to cure the diſeaſe. Into the inciſion I put a little dry lint, and tied the ſcrotum up in a bag-truſs.

To my great aſtoniſhment, the next day my dreſſer told me, that Corby's ſcrotum was ſwelled to a great ſize, and that the inciſion was already livid. I went to the Hoſpital, and found it ſo, I ordered the part to be fomented, and wrapped up in a warm pultice; and that the man ſhould take the cortex freely, till the phyſician ſhould ſee him.

In three days time, the whole ſcrotum, and ſkin of the penis was completely mortified; and a conſiderable part of the pubes altered and veſicated: his pulſe was quick, and ſmall; he complained of a burning heat in his belly and bladder; his thirſt was intenſe; and his extremities cold.

For ſeveral days I was convinced, that each would be his laſt; his fomentation, cataplaſm, and dreſſings were continued; the doctor ordered him a dram of the bark, as often as his ſtomach would bear or keep it, in a julep, well impregnated with volatile ſalt; and the poor man earneſtly begged to be allowed a pint of porter a day; which he had. At laſt, in about three weeks time, the whole ſcrotum, the integuments of the penis, and ſome part of the pubes caſt off, leaving the corpora cavernoſa, and the tunica vaginalis, as clean as if they had been diſſected. The man got well.

More of the ſame kind of caſes might be produced, in which the trouble and hazard attending large inciſions of the ſcrotum, in dropſical caſes, have been great; but the ſimilarity of them renders it unneceſſary. I ſhall therefore only add, that from the ſimple puncture I have ſeldom met with either; and that I have as ſeldom known them fail to anſwer the purpoſe for which they were intended, *viz.* a temporary diſcharge of ſerum, from the cellular membrane.

SECT.

SECT. V.

IF we conſider the preceding complaint as merely ſymptomatic, and do not rank it among the different kinds of hydrocele, there will then remain only three, *viz.*

1. That which conſiſts of a collection of water in the cells of the tunica communis, or cellular membrane, enveloping and connecting the ſpermatic veſſels.

2. That which is formed by the extravaſation of a fluid, in the ſame coat as the former, but which, inſtead of being diffuſed through the general cellular ſtructure of it, is confined to one cavity or cyſt, in which all the water conſtituting this ſpecies of diſeaſe is contained; the reſt of the membrane being in its natural ſtate.

3. That which is produced by the accumulation of a quantity of water, in the cavity of the tunica vaginalis teſtis.

Theſe three are diſtinct, local, and truly within the province of ſurgery. They may accidentally be combined or connected with other diſorders, but not neceſſarily; and are frequently found in perſons whoſe general habit is good, and who are perfectly free from all other complaints.

The Hydrocele of the Cells of the Tunica communis.

IN the anatomical account of the parts, which make the ſeats of the different kinds of hydrocele, it has been obſerved, that the ſpermatic veſſels, from their origin quite down to their inſertion into the teſticle, are enveloped in, and connected together by, a membrane, called formerly tunica vaginalis vaſorum ſpermaticorum, but now (more properly) tunica communis. That this membrane ſo enveloping

the

the ſpermatic veſſels, has no one particular cavity, (as its old name would ſeem to imply;) but is merely cellular, as either the inflation of air, or the extravaſation of a fluid, will always prove. That while it is within the cavity of the belly, its cells are lax and large; and when it has paſſed out from thence, and has formed a part of the ſpermatic proceſs, by enveloping its veſſels, its cells are rather ſmaller, and the membrane compoſing them firmer. That it is included within that thin expanſion of muſcular fibres, called the cremaſter. And that a great number of lymphatics, paſſing from the teſticle to the receptaculum chyli, are always to be found in it.

An attentive conſideration of theſe circumſtances in the ſtructure of this part will ſhew us, why either obſtruction or breach in the lymphatic veſſels, conſiderable preſſure by means of diſeaſed indurations within the abdomen, or a morbid ſtate of the parts which ſhould receive the lymph from the veſſels of the ſpermatic chord, may induce the diſeaſe in queſtion; and alſo, when it is produced, that its appearance, and the nature of the extravaſation, muſt make the term *cellular* a very proper one, as expreſſive of its true ſtate*.

When the diſeaſe is ſimple, it is perfectly local; that is, it is confined entirely to the membrane forming the tunica communis; and does not at all affect, either the dartos, the tunica vaginalis teſtis, or any other part.

* "J'ai ſouvent vû des tumeurs aqueuſe, groſſe comme des grains de raizen, pla-
"cées d'eſpace en eſpace le long du cordon ſpermatique, accompagner une veritable hy-
"drocele placée ſur le corps du teſticule." Le Dran.

The firſt part of this paragraph is a juſt and true deſcription of the hydrocele of the cells of the tunica communis, when not much diſtended: but if by "une veritable hydrocele," Mr. Le Dran means that of the tunica vaginalis, his deſcription of it, as "Une "tumeur aqueuſe placée ſur le corps du teſticule," is very inexpreſſive, inadequate, and likely to convey an erroneous idea.

It is a complaint, which does not give a great deal of trouble, unleſs it arives to a conſiderable ſize; and, being by no means ſo frequent as either of the other two kinds of hydrocele, it is in general but little known or attended to. With ſome, it paſſes for a varix of the ſpermatic chord; with others, for the deſcent of a portion of omentum, which having contracted an adheſion cannot be returned. Thus, its true nature not being in general rightly underſtood, and it giving but little trouble or uneaſineſs while it is within moderate bounds, and neither hindering any neceſſary action or faculty, they who have it are moſt frequently adviſed to be contented with a ſuſpenſary bandage, and find very little inconvenience from it.

Sometimes it ariſes to ſo large a ſize, and gets into ſuch a ſtate, as to become an object of ſurgery, and to require our very ſerious attention.

In general, while it is of moderate ſize, the ſtate of it is as follows. The ſcrotal bag is free from all appearance of diſeaſe; except that when the ſkin is not corrugated, it ſeems rather fuller, and hangs rather lower on that ſide, than on the other, and if ſuſpended lightly in the palm of the hand, feels heavier: the teſticle, with its epididymis, is to be felt perfectly diſtinct below this fulneſs, neither enlarged, nor in any manner altered, from its natural ſtate: the ſpermatic proceſs is conſiderably larger than it ought to be, and feels like a varix, or like an omental hernia, according to the different ſize of the tumor: it has a pyramidal kind of form, broader at the bottom than at the top: by gentle and continued preſſure it ſeems gradually to recede or go up, but drops down again immediately upon removing the preſſure; and that as freely in a ſupine as in an erect poſture: it is attended with a very ſmall degree of pain or uneaſineſs; which uneaſineſs is not felt in the ſcrotum, where the tumefaction is, but in the loins.

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If the extravaſation be confined to what is called the ſpermatic proceſs, the opening in the tendon of the abdominal muſcle is not at all dilated, and the proceſs paſſing thro' it may be very diſtinctly felt; but if the cellular membrane which inveſts the ſpermatic veſſels within the abdomen be affected, the tendinous aperture is inlarged; and the increaſed ſize of the diſtended membrane paſſing thro' it, produces to the touch, a ſenſation, not very unlike that of an omental rupture.

While it is ſmall it is hardly an object of ſurgery; the pain or inconvenience which it produces being ſo little, that few people would chuſe to ſubmit to an operation to get rid of it; and it is very ſeldom radically curable without one: but when it is large, or affects the membrane within the cavity, as well as without, it becomes an apparent deformity, is very inconvenient both from its ſize and weight, and the only method of cure which it admits is far from being void of hazard; as muſt appear to every one who will conſider, or who is at all acquainted either with the nature of lymphatic extravaſation or abſorption, or with the frequent conſequences of wounds inflicted on parts merely membranous.

CASE VIII.

A Man about fifty-five deſired me to look at a rupture, under which he ſaid that he had laboured for ſeveral years. For the greateſt part of that time he had worn a ſteel truſs, which had given him little or no uneaſineſs, but had never kept his rupture up. During all this time he never had any ſymptoms of obſtruction in the inteſtinal canal; nor had the tumor ever increaſed in ſize, or altered its appearance, until within the laſt three or four months, when he had been perſwa-

ded to change his truſs for a bandage without iron, and to make uſe of an external application, which was ſaid to be infallible.

What the application was I know not; but its effect was an excoriation of the groin and parts about: the bandage was made of dimity, had a large hard bolſter, with three or four buckles, and was buckled on very tight.

He ſaid, that the pain it had cauſed had been great; but that he had chearfully ſubmitted to it, having been aſſured that the medicines, aſſiſted by the preſſure, would ſoon ſhrink up a piece of caul which was in the ſcrotum, and thereby free him from all poſſibility of a return of his diſeaſe; and that, after that was done, he might leave off all kind of bandage, and do as he pleaſed.

He had now made the experiment, till the pain was ſo great, and the parts ſo ſwelled, that he could endure it no longer. The ſcrotum was much inflamed, and ſwelled; the groin excoriated; the teſticle enlarged, but not hard; the ſpermatic proceſs quite up to the belly, full, tight, and ſo exquiſitely painful, that he could not bear the moſt gentle handling; he had no obſtruction on his going to ſtool; nor any ſymptom of the confinement of any part of the inteſtinal canal. The principal information which I could get was from his own account; for he could not bear the ſlighteſt touch. From this it appeared to me, that whatever might be the true ſtate of the caſe, it was very clear, that the firſt thing to be done was to obtain eaſe. I therefore put him to bed, bled him freely, ordered him to have a glyſter thrown up immediately, and to take two ſpoonfuls of a purging mixture every two or three hours, until he ſhould have a free diſcharge per anum; and then to take a grain of extract. thebaic. I wrapped up the ſcrotum, and covered the groin and pubes with a warm ſoft pultice, and put on a bag truſs.

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He paſſed the day in a very uneaſy reſtleſs ſtate; and in the evening, finding his pulſe not at all lower, nor his pain leſs, (his purging mixture having done its duty) I took away fourteen ounces more of blood, and ordered his opiate to be taken again, and repeated at the diſtance of every ſix hours. Forty-eight hours paſſed over, during which time he took ſeven grains of opium, before he could get ſleep or eaſe; and when he obtained the former, it did not laſt more than three or four hours, (an effect I have ſeveral times ſeen, in the exhibition of large and frequently-repeated doſes of opium, given either to appeaſe pain, or to quiet a phrenzy.)

When he awoke, he was eaſier, and ſeemed to be much refreſhed; his pulſe was ſofter, his perſpiration free, and the parts leſs inflamed, and leſs painful; his pultice was renewed, after fomentation; and he was directed to take a draught of the common emulſion every ſix hours, with ſome manna and nitre in it; by which means he had, in the courſe of the next day, two plentiful diſcharges by ſtool.

By theſe means, within the ſpace of ſix or ſeven days, all his inflammatory ſymptoms were removed; and the parts reduced to nearly the ſame ſtate, in which they were when he put on his dimity bandage: that is, the teſticle was of its natural ſize, but the ſpermatic proceſs large and full, tho' ſoft, and indolent, and feeling very like to a ſmall omental rupture.

For greater certainty, I kept him in bed a day or two more; and confined him to the ſame low regimen, with an open body.

The ſpermatic proceſs continued in the ſame ſtate. I attempted to reduce the apparent rupture, but without ſucceſs; tho' there was no reaſon to think that there was the leaſt ſtricture made on it by the tendon of the abdominal muſcle. I could indeed make a ſmall part of it recede, but even that did not paſs the opening at all like a piece of omentum; it did not give any of that ſenſation to my fingers,

nor

nor produce that kind of noiſe, which the return of a rupture into the abdomen generally does; and the moment I removed my fingers, it fell down again, altho' the patient was in a ſupine poſture. In ſhort, I made attempts for reduction ſo long, and ſo often, that I was perfectly ſatisfied that the prolapſed part was not reducible, (at leaſt by me.)

It now gave him no pain, nor uneaſineſs of any kind; but he had ſuffered ſo much from the preſſure of his bandage, and was ſo ſatisfied (from the ſucceſſleſs attempts which I had made,) that his rupture was not capable of being reduced, that he contented himſelf with a common ſuſpenſory bag, and found not the leaſt alteration in it, for the ſpace of three years. At the end of this time he was attacked with a peripneumony, and died.

I obtained leave to examine his body, and found, that what I had taken for a portion of omentum was a collection of water in the cells of the tunica communis of the ſpermatic veſſels, on the outſide of the cavity of the abdomen; that nothing elſe had paſſed thro' the tendon of the oblique muſcle; and that the teſticle, and tunica vaginalis, were perfectly unaffected.

Notwithſtanding the account which this patient had given of himſelf, and of his having frequently reduced his rupture, I am ſatisfied that he never had one; and that his diſeaſe had, from the firſt, been what it at laſt appeared to be. There was no ſign of a hernial ſac; and tho' the return of ſuch ſac back again into the belly, after it has been in the groin or ſcrotum, is a thing much talked of by late writers, I do not believe that it ever happened.

This ſteel truſs did not preſs hard enough to produce any miſchief, and was thought not to have kept his rupture up; and the ſymptoms, under which I found him labouring, were occaſioned merely by the dimity bandage, ſubſtituted in the place of his truſs; which having

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large hard bolſters, and being buckled on very tight, preſſed violently on the ſpermatic veſſels and loaded membrane.

CASE. IX.

A Healthy middle-aged man applied to me one day, while I was dreſſing the Hoſpital, and ſhewed me a conſiderable ſwelling in his ſcrotum. I examined it, and told him I believed it to conſiſt of water. He replied, he knew it; for that Mr. Baker, then one of the ſurgeons of the Weſtminſter Infirmary, had a few days before drawn ſome from it by puncture with a lancet. Upon hearing this, I examined it again, imagining that I might poſſibly find it to be blood: (a circumſtance which now and then happens, after tapping a common hydrocele:) but ſtill it appeared to me to have all the marks of a tumor from water, and to be principally in the ſpermatic chord. The dartos was indeed a little thickened by the inſinuation of a ſmall quantity of a fluid into ſome of its cells, but the teſticle was much too plainly diſtinguiſhable, for the caſe to be taken for a hydrocele of the tunica vaginalis; nor was the upper part of the proceſs, in that free ſtate in which it is moſt frequently found, in that diſeaſe. I took him into the Hoſpital, and ordered him to keep his bed, till I ſaw him the next day; at which time I paſſed a ſmall trochar into the anterior part of the tumor a little higher than uſual; at firſt a limpid ſerum flowed freely; but that ſoon ſtopped, and I was neceſſitated to paſs a probe frequently up the cannula, to get away the remainder; neither could I, either by that means, or by preſſure, reduce the ſcrotum to a proper ſize, or remove the fulneſs of the proceſs above. I ordered the part to be fomented night and morning, and the whole ſcrotum and groin to be covered with a ſoft pultice; and that the man

man ſhould take a ſolution of manna and glauber's ſalt the next morning. The applications were continued, and the purge repeated every ſecond or third day, for a fortnight; at the end of which time, the ſwelling was as large as when I firſt ſaw it.

During this interval of time, I frequently examined the parts; and always found the teſticle much more free, and independent, than I had ever felt it in a hydrocele of the tunica vaginalis. It appeared to me, from the kind of fluid which had already been twice let out, and from the preſent appearance of the part, that no cure would be obtained without laying the whole open; but as I was by no means certain, what was the preciſe nature of the diſeaſe, or in what ſtate the parts might be found, I informed the man that it might poſſibly become neceſſary to remove that teſticle. To this he conſented; and I made an inciſion, thro' the ſkin, from the groin down as low as the teſticle; intending, if I had found the proceſs diſeaſed, to have caſtrated.

The inciſion was followed by a large diſcharge of water, not only from the lower part, where there ſeemed to have been a conſiderable collection in one cavity, but from the ſurface of the whole cellular membrane incloſing the ſpermatic veſſels. Finding this membrane no other way diſeaſed than by the watry diſtention of its cells, I went no farther with my operation, but filled the inciſion lightly with ſoft lint. For three or four days the diſcharge of ſerum was large; but that ceaſing, a plentiful ſuppuration ſucceeded; which was followed by a perfect ſubſidence of the whole tumor; and in due time the wound healed, and the man obtained a cure.

CASE

CASE X.

A Gentleman about thirty-five years of age, came out of the North, to London, for the aſſiſtance of Mr. William Sharpe, in the caſe of a large tumor of the ſcrotum; which, he ſaid, had been coming five or ſix years.

The account which he gave of it was, that at firſt it was ſmall, eaſily (as he thought) put up, but came down again immediately; which he attributed to his not having been accommodated with a proper bandage; that at the end of about nine months, or rather more, he found that he could not reduce it at all, whatever pains he took, or whatever poſture he put himſelf into; and that from this time, its increaſe had been daily more apparent. The caſe was ſingular; and Mr. Sharpe deſired me to ſee it with him.

The ſcrotum was of a moſt prodigious ſize; it hung more than half-way down to the patient's knee; it was very ill ſupported, by an aukward bag of his own making; and, toward the lower part, was much ulcerated, by neglected excoriations. Different parts of the tumor felt very differently; in ſome places, it was hard; in ſome, ſoft; and in others, a thin fluid was palpably diſcoverable. The ſpermatic proceſs was large and full, quite up to the groin; the aperture in the abdominal muſcle was conſiderably dilated by it; and when the patient coughed, the whole tumor was manifeſtly diſtended: his ſtools were regular, his appetite good, his urine proper in quality, but very deficient in quantity; his ſole complaints were, a pain in his back (proceeding as we ſuppoſe from the weight of the ſcrotum), and a languor and diſpiritedneſs, which he had not been accuſtomed to, and could not account for.

The feel of ſome part of the tumor was like that of an inteſtinal hernia, in which there is no ſtricture, and the gut does its office in ſcroto; but other parts of it were ſo unlike to this, and the upper part of it toward the groin was ſo large, and ſo hard, that we remainded in great doubt concerning the true nature of the contents.

When we had ſufficiently examined the tumor in an erect poſture, we put the patient into a ſupine one, which produced a conſiderable alteration in the appearances: the tumor became manifeſtly leſs, and ſofter; and ſeemed, by retiring, to occaſion a large ſwelling on that ſide of the belly, juſt above the os ilion, tending backward toward the region of the kidney. Upon continued preſſure, the contents of the ſcrotum ſeemed to recede ſtill more; and ſtill as they receded, the ſwelling on the ſide of the belly increaſed. When we had got up to a certain point, we could get up no more; but during our endeavours to return as much as we could, we clearly diſcovered that the tumor in the ſcrotum, and that within the belly, were produced by the ſame body; that there was a palpable and free fluctuation, from the one to the other; and that the harder parts were mere indurations, and thickenings of the integuments and common membrane.

The burden was ſo great, that the patient was deſirous of being eaſed, at any rate. We communicated to him our opinions, our ſuſpicions, fears, and uncertainty; and told him what hazard might poſſibly be incurred, by acting according to the former, if we ſhould be miſtaken; but he being determined to endeavour to obtain relief, at all events, and we being prepared, as well as we could, for whatever might happen, made a ſmall inciſion into the lower, and anterior part of the tumid ſcrotum.

As ſoon as we had divided the ſkin, a quantity of clear limpid water burſt forth, of which we caught above a quart; and then the opening

ing was ſtopped, by ſomething which thruſt itſelf out, and looked like a piece of cellular membrane loaded with water. We cut a part of it off, and gently puſhed back the reſt with a probe; while by moderate and continued preſſure, we drained off eleven Wincheſter pints of water.

When we could get no more away, we would have enlarged the opening; but our patient found himſelf ſo lightened, and ſo eaſy, that he would not permit it.

The ſcrotum, it is true, was conſiderably leſſened; but in no proportion to the quantity of water which had been drawn off: the whole ſpermatic proceſs, from the teſticle quite up to the belly, was ſtill large and full; and the abdominal opening ſtill dilated by a large body paſſing thro' it; but, as the ſwelling in the belly could not now be felt in any poſture, and as the ſcrotum was reduced to ſuch a ſize as to be eaſily ſupportable by a bag truſs, he determined to wait the effect of what had already been done. In little more than a month we ſaw him again; the tumor in the ſide of the belly was as apparent, the fluctuation as palpable, and the burden as great as when we firſt ſaw him. His health was ſtill good in general; but his face appeared to me to be more pale and wan, and he complained ſtill more of thirſt and languor.

As we were now ſure of the nature of the contents, we divided the whole ſcrotum from the bottom upward. The lower part was formed into a cyſt, or bag, made by the preſſure of the water, which was diſcharged upon the firſt introduction of the knife; but all the reſt of the tumor was formed by the diffuſion of ſerum thro' all the ſtructure of the tunica communis, the cells of which were all much enlarged with it, quite up to the groin; the teſticle being very diſtinct, and free from diſeaſe. The ſerum oozed freely from all parts of this membrane by gentle preſſure; and as it ſeemed to ſub-

ſide conſiderably thereby, we meddled no farther, but contented ourſelves with filling the inciſion lightly with dry lint, and ſuſpending the ſcrotum in a bag truſs.

During the firſt two or three days, the diſcharge of water was conſtant and plentiful; and the ſore was (as might be expected) crude and undigeſted; but without any of that inflammatory hardneſs and ſwelling, which wounds, made in ſuch parts, in healthy ſanguine people, generally have; on the contrary, the lips were flaccid, and ſoft: it is true, he was perfectly free from fever or pain, and, except the circumſtances juſt mentioned of thirſt and languor, he had no apparent diſorder; but they were great and troubleſome. The diſcharge of water continued large, and his wound neither digeſted nor inflamed; nor did it wear any the leaſt appearance of gangrene, or mortification; his languor and anxiety increaſed daily; and on the 14th day from that of the operation, he died; the ſore ſtill wearing the ſame face.

Upon opening his body, we found all the cellular membrane which inveſted the ſpermatic veſſels within the abdomen loaded with water, and diſtended in a very irregular manner, from the origin of the ſaid veſſels quite down to the opening of the oblique muſcle; at this place it was contracted into a round, or rather a flattiſh body, of leſs ſize, but ſtill ſo large, as to dilate the opening in the tendon conſiderably. Below this it was again expanded, and diſtended with water, thro' all its cells; but the teſticle, and its tunica vaginalis, were in a ſound ſtate, and perfectly unaffected by the diſeaſe.

Was it the large diſcharge of ſerum, or the free diviſion of membranous parts, which occaſioned this gentleman's death? For my own part, I am inclined to attribute it to the former; for though an inciſion, made in parts of ſuch ſtructure, and ſo diſeaſed, does ſometimes prove fatal, yet the parts themſelves in ſuch caſe generally ſhew, by a gangrenous or mortified appearance, what ſhare ſuch operation has in the patient's deſtruction.

In

In this caſe, there was indeed no digeſtion, nor any of that inflammation, which always precedes ſuppuration; nor, on the other hand, was there any appearance like gangrene or ſphacelus; but his manner of dying was very much like that of thoſe who are deſtroyed by large hæmorrhages.

SECT. VI.

The encyſted Hydrocele of the Tunica communis.

THIS ſpecies of Hydrocele has its ſeat in the ſame part as the preceding, *viz.* the tunica communis, or cellular membrane, which inveſts the ſpermatic veſſels; with this difference, that, in the former, the water is diffuſed in general thro' all the cells of the membrane; whereas in this, it is contained in one cavity only. If any of the three kinds of hydrocele deſerves the name of encyſted, it is this. The water which conſtitutes it being all contained in a bag, formed in the ſame manner, as all the coats, of all encyſted tumors are, *viz.* by mere preſſure, and condenſation of the common membrane.

It is a complaint by no means infrequent, eſpecially in children. It was very well known to many of the ancients, and has been very accurately deſcribed by ſome of them*; but later writers have often miſtaken

* By Albucaſis, by Celſus, Paulus Ægineta, and others. The laſt has particularly diſtinguiſhed this kind of hydrocele, from that of the tunica vaginalis, by a very juſt deſcription of both: "Si humor in membrana ſupernata coierit, tumor alterius teſticuli "imaginem exhibet. Quibus in Erythroide tunica humor comprehenſus eſt tumor ro- "tundus paululum, et ovi modo longiuſculus: his teſticulus in conſpectum non venit, "ut qui undiquaque ſit implicitus."

The former of theſe deſcriptions our countryman Peter Lowe, has moſt probably copied,

miſtaken it for, and repreſented it as, a ſpecies of wind-rupture, or pneumatocele; a diſeaſe exiſting in their imaginations only. It moſt frequently poſſeſſes the middle part of the proceſs, between the teſticle and groin, and is generally of an oblong figure; whence it has by ſome people been compared to an egg, by others to a fiſh's bladder. Whether it be large or ſmall, it is generally pretty tenſe, and conſequently the fluctuation of the water within it, not always immediately or eaſily perceptible; for which reaſon it has been ſuppoſed to contain air only. It gives no pain, nor (unleſs it be very large indeed) does it hinder any neceſſary action. It is perfectly circumſcribed; and has no communication, either with the cavity of the belly above, or that of the vaginal coat of the teſticle below it. The teſtis and its epididymis, are perfectly and diſtinctly to be felt below the tumor, and are abſolutely independent of it. The upper part of the ſpermatic proceſs

pied, when he ſays, "It is ſometimes inoloſed in a membrane, and appeareth like a "third teſticle."

Heiſter ſpeaks of this ſpecies of hydrocele as very rare, only quotes the authority of others to prove its exiſtence, and ſeems in ſome meaſure to confound it with a collection of fluid in a congenial hernial ſac.

Page 842, he ſays, "Quandoque tamen etiam, ut nonnulli autores referunt, in pe-"ritonæi proceſſu, ſupra teſticulum, liquor præter naturam colligitur: imo etiam in "productione peritonæi, ab inteſtinorum hernia orta, copioſum liquorem in cadavere, "ſectione aliquando deprehendi." And in a note on this paſſage he adds, "Weideman-"nus, nec non Boerhavius, itemque Garengeotus et Dranius memorant iſtiuſmodi hy-"droceles caſus quandoque obſervari; ubi digito contingi teſticulus queat; atque tunc "ſupra teſticulum in peritonæi proceſſu tumorem et humorem conſiſtere. In enterocele "autem contrarium quandoque uſu venire, propterea quod inteſtina interdum, ut ſu-"pra monui, uſque in tunicam vaginalem, per ſeptum illud naturale, quod teſticulum a "parte ſuperiori proceſſus peritonæi diſtinguit penetraverunt."

"Sed rari admodum ſint neceſſe eſt, ad quos modo laudati autores provocant caſus. "Ego ſane quanquam plurimos homines enterocele, non minus quam hydrocele laboran-"tes ſanaverim, nunquam tomen adhuc ita rem inveni," &c.

proceſs in the groin is moſt frequently very diſtinguiſhable. The ſwelling does not retain the impreſſion of the fingers; and when lightly ſtruck upon, ſounds as if it contained wind only. It undergoes no alteration from change of the patient's poſture; nor is affected by his coughing, ſneezing, &c. and has no effect on the diſcharge per anum.

Theſe marks (while the diſeaſe is ſimple and uncombined with any other) are ſufficient to diſtinguiſh it by, from all others which may affect the ſame part; but it ſometimes happens, that the preſent complaint is found connected either with a true hernia, or with a hydrocele of the tunica vaginalis; by which the caſe is rendered complex, and leſs eaſy to be underſtood.

In this, as in every other caſe where, from a complication of ſymptoms and appearances, a combination of diſeaſes may be ſuſpected, there is but one method of inveſtigating the truth; which is, to conſider carefully what diſorders the part aggrieved is naturally liable to; what the diſtinct ſymptoms and appearances of each of thoſe are; and what are the effects of the preſent complaint. The two diſeaſes with which this kind of hydrocele is moſt likely to be combined are, as I ſaid before, an hydrocele of the tunica vaginalis teſtis, and a true hernia; the parts within the groin, the ſpermatic proceſs, and the ſcrotum being the ſeat of all three.

One mark, or characteriſtic of an hydrocele of the tunica vaginalis teſtis is, that it poſſeſſes and diſtends the inferior part of the ſcrotum; and that the teſticle being nearly, (tho' not abſolutely) ſurrounded by the water, it very ſeldom happens, that the former can be clearly and plainly diſtinguiſhed by the fingers of an examiner; whereas in the encyſted collection, in the membranes of the chord, the tumor is always above the teſticle, which is obvious and plain to be felt below it.

Another

Another circumſtance worth attending to is, that altho' the fluid in a hydrocele of the vaginal coat does ſo nearly ſurround the teſtis as to render it often not very eaſy to be diſtinguiſhed, yet the different parts of the tumor have always a very different feel: for inſtance, in all thoſe points where the vaginal tunic is looſe, and unconnected with the tunica albuginea, the tumor is ſoft and compreſſible, and gives a clear idea of the contained fluid; but when theſe two coats are continuous, or make one and the ſame membrane, and have no cavity between them (which is the caſe on the middle and poſterior part) there will always be found a hardneſs and firmneſs, very unlike to what is to be found in all thoſe places, where the diſtance * between the two tunics leaves room for the collection of a fluid: now the hydrocele of the chord being formed in the mere cellular membrane of it, is the ſame to the touch in all the parts of the tumor, and feels like a diſtended bladder thro' every point of it.

The free ſtate of the upper part of the ſpermatic proceſs, while the tumor is forming below; the gradual accumulation of the fluid, and conſequently the gradual growth of the ſwelling; the indolent and unaltering ſtate of it: its being incapable of reduction, or return into the belly from the firſt; its being always unaffected by the patient's coughing, or ſneezing; and the uninterrupted freedom of the fæcal diſcharge per anum, will always diſtinguiſh it from an inteſtinal hernia; and he who miſtakes it for an omental one, muſt be very ignorant, or very heedleſs.

Now, altho' there may not always be ſuch external marks as may, to the eye, explain the combination of theſe diſeaſes with each other; yet the particular ſeat, and ſymptom of each being known, and the ſenſations

* "Tunica Erythroides naturæ nervoſæ, in gibba quidem et anteriore e teſticulo li-
"bera eſt, in concava et poſteriori ipſi adhereſcit ex peritonæo originem trahens." Paulus Ægineta.

ſenſations which they produce to the fingers of an intelligent examiner being well underſtood, when ſuch mixed characteriſtics are found in the ſame ſubject, we may reaſonably conclude the caſe to be complex, and act accordingly.

I have indeed ſeen an encyſted hydrocele, ſituated ſo high toward the groin, as to render the perception of the ſpermatic veſſels very obſcure, or even impracticable; but then, the ſtate and appearance of the teſticle, and the abſence of every ſymptom proceeding from confinement of the inteſtinal canal, were ſufficient marks of the true nature of the complaint.

Infants are much more ſubject to this diſeaſe, than adults; tho' it often affects the latter.

In young children, it frequently diſſipates in a ſhort time, eſpecially if aſſiſted by warm fomentation, and an open belly.

If it does not diſperſe, that is, if it be not abſorbed, the point of a lancet will give diſcharge to the water; and, in young children, will moſt frequently produce a cure: but in adults, the cyſt formed by the preſſure of the fluid does ſometimes become ſo thick, as to require diviſion thro' its whole length; which operation may in general be performed with great eaſe, and perfect ſafety: I ſay in general, becauſe it is moſt frequently ſo; tho' I have ſeen, even this, ſlight as it may ſeem, prove troubleſome, hazardous, and fatal. Of ſuch conſequence are wounds in membranous parts in ſome particular habits.

CASE XI.

A Lad about ſixteen years old was taken into St. Bartholomew's Hoſpital, with a complaint which he had been told was a rupture.

The tumor was large, of an oblong figure, began juſt below the exit of the ſpermatic veſſels from the belly, and extended to the bottom of the ſcrotum; but in the middle of it was a depreſſion, or ſtricture, which ſeemed to divide it nearly into two equal parts. The upper part was ſo high, that I could not feel the ſpermatic proceſs at all ſatisfactorily; and altho' there was palpably a fluid in the whole of the ſwelling, yet the upper and lower parts of it did not ſeem to communicate with each other; at leaſt the fluctuation thro' them was not diſcernible. As he had never had any ſymptom of a true hernia, and as the account he gave of the gradual formation of the tumor joined to the fluctuation, &c. convinced me that it was principally if not totally water, I pierced the lower part carefully, and drew off nearly half a pint of yellowiſh ſerum; by which means the ſcrotum became immediately empty and rugous, and the teſticle clearly diſtinguiſhable; but the upper part of the ſwelling remained as large and as tenſe as before, nor could I by any means obtain a drop of fluid more from below.

The next day I ordered him a briſk purge, which operated well; and two or three days after, being ſatisfied that the inteſtinal canal could have no ſhare in the complaint, I thruſt a lancet into the anterior part of the upper tumor; by which means a quantity of limpid ſerum was diſcharged, and the whole ſwelling immediately diſappeared, leaving the ſpermatic veſſels free, and eaſily diſtinguiſhable.

In

In a few days he left the Hoſpital; and at the end of a year, or a little more, he came to me again, with the lower part of the ſcrotum full, but without any appearance of the tumor above. In ſhort, his former ſtate conſiſted of a complication of the encyſted hydrocele of the ſpermatic chord with that of the tunica vaginalis teſtis; the former was cured by the firſt puncture, the latter was now as full as ever.

Conſidering the lad's age and temperament, I adviſed him to ſubmit to the operation for the radical cure by inciſion; which operation was performed, and he got well in about ſeven weeks, nor has had any return of either complaint ſince.

CASE XII.

A Man about thirty-five, who had for ſome years been troubled with a hydrocele of the tunica vaginalis, which had often been emptied by puncture, came to me for advice.

The ſwelling in the ſcrotum, he ſaid, was now about one third of the ſize it uſed to be of, when he had been accuſtomed to have it tapped: it was not tenſe, was of an irregular figure, and plainly contained a fluid. But it was not on account of this tumor that he applied to me.

Within two months paſt he had diſcovered another ſmall ſwelling, higher up towards his groin, perfectly diſtinct from the lower one: it was about the ſize of the largeſt French walnut, of an oblong figure, abſolutely indolent, very tenſe, and left the ſpermatic proceſs, at its exit from the abdomen, perfectly free.

From the appearance which theſe tumors made, and from the patient's account, I made no doubt of the nature of the caſe, *viz.* that

the upper one was made by a collection of water, in a cyſt, formed in the cellular membrane which makes the tunica communis of the ſpermatic veſſels; and that the lower one was a true hydrocele, of the tunica vaginalis teſtis.

Upon this preſumption, I pierced the upper one with a lancet; and let out a ſmall wine-glaſs full of clear limpid ſerum. The tumor immediately ſubſided, and left the whole ſpermatic proceſs free; but the lower ſwelling was not at all affected by what had been done above. The puncture was well in a day or two; and the hydrocele of the vaginal coat, not being full enough to be at all troubleſome, he would not permit me to meddle with that. At the end of about nine months he ſent for me; his hydrocele was full and large, but he had not the ſmalleſt appearance of the tumor in the proceſs. The water was let out by puncture, as uſual; as it has been ſeveral times ſince; but he has never ſuffered any return of the collection in the proceſs.

CASE XIII.

A Lad about fourteen years old was brought into St. Bartholomew's Hoſpital for a rupture; which a ſurgeon (who had ſeen him at home) had told his friends, was not in a ſituation to admit delay; and it being my week for accidents, I was ſent for immediately. I found a large tumor, full, and tight, poſſeſſing the whole ſpermatic proceſs and ſcrotum, from the groin quite down to the teſticle; which was independent of it, and perfectly diſtinguiſhable. As he lay on his back, it was perfectly indolent; but in an erect poſture, or in the action of ſtooping, he complained of pain: it was not tender to the touch, unleſs preſſed hard; and it was nearly of equal ſize from the top to the bottom: it bore ſo hard againſt the opening in the abdominal

nal muſcle, that I could, by no means, feel the ſpermatic proceſs: he ſaid, that it had appeared within a week; and, that he had had no ſtool for five days paſt.

Some of theſe were circumſtances of importance, and might be occaſioned by a ſtricture on the inteſtinal canal: but, on the other hand, his pulſe was ſoft, calm and quiet, and his ſkin cool: he had neither tight belly, nauſea, hiccough, nor vomiting; nor any other ſymptom (general or particular) deducible from ſuch cauſe.

From the mere appearance, and feel of the tumor, I ſhould have ſuppoſed it to have been cauſed by water; but the difficulty of diſtinguiſhing the ſpermatic proceſs above, the freedom of the teſticle below, and the want of ſtools, made me heſitate.

But tho' I was in ſome doubt concerning the preciſe nature of the caſe, yet I was very clear, there was no immediate neceſſity for an operation. Therefore having found, that I could not return any part of the contents of the tumor into the belly, I took away ſixteen ounces of blood from his arm, ordered a glyſter to be thrown up immediately, and two ſpoonfuls of a purging mixture to be taken every two hours, until a plentiful diſcharge per anum ſhould be procured.

He took his mixture only twice, and had ſix large ſtools that afternoon; and when I ſaw him the next morning, he was perfectly well in health, but the tumor exactly the ſame. I examined it again, and again, and was ſtill more poſitive that it contained a fluid; but whether that fluid was in the tunica communis, or in a hernial ſac, I could by no means be clear. However, as there was no poſſible method of getting rid of it but by an opening, I determined to make one with ſuch caution, as to be prepared for whatever might happen.

I made a ſmall inciſion, into the anterior, and lower part: when I had divided the ſkin and cellular membrane, I found a firm hard membrane, which I took for the ſac of an hernia: this I divided with the

ſame

ſame caution, and gave diſcharge to a conſiderable quantity of ſerum; upon which the whole ſwelling immediately ſubſided, the ſpermatic proceſs appeared in a natural ſtate, and the opening in the tendon undilated.

The inciſion was dreſſed ſuperficially, and healed in a few days.

Within leſs than half a year he came to me again, with the ſwelling as large, and under the ſame apparent circumſtances, as before. His habit was ſo good, and I ſo well remembered the toughneſs of the cyſt, at the firſt operation, that I made no ſcruple of adviſing him to have it laid open thro' its whole length. To this he ſubmitted, and obtained a perfect cure.

CASE XIV.

A Man about forty, ſervant to one of the governors of St. Bartholomew's Hoſpital, came thither for advice concerning a rupture; which, he ſaid, the ſurgeons in the country had often endeavoured to put up, but had never ſuccecded.

The groin and all the upper part of the ſcrotum was large and full; but the teſticle below very fair, and diſtinct from the tumor. The account which he gave was, that he firſt perceived the beginning of the ſwelling, in the evening of a day in which he had ridden a very hard fox chace, and had been a good deal hurt by a fall over his horſe's head. That at firſt it was ſmall; and that it had gradually increaſed ever ſince. That it had never been up ſince it firſt appeared. That he conſtantly felt a dull kind of uneaſineſs in it; and that it was very troubleſome to him when on horſeback; which he was frequently obliged to be, as his buſineſs was that of an huntſman. I examined the caſe carefully, and was ſatisfied that it was water, and not in the vaginal coat of the teſticle.

teſticle. He had for ſome time worn a truſs, which had rendered the part uneaſy; had lived freely with regard to liquour; had a yellowneſs in his countenance, which had an unhealthy appearance; his legs were rather too full; and he had, for a little while paſt, been under the direction of a phyſician in the country.

I did not like his appearance, conſidering him as the ſubject of an operation, and therefore adviſed him to return into the country, and continue to follow his doctor's direction.

At the diſtance of three or four months, he came to the hoſpital again. He had now the appearance of very good health. His countenance was freſh; his appetite keen; his urine in proper quantity; and his legs fine. His tumor was larger; and he ſaid it was become ſo troubleſome, that if ſomething was not done for it, he muſt quit his ſervice, and go to the pariſh.

I could have wiſhed, that his former ſtate had been different; but having apprized him, how much that added to the hazard of any attempt toward curing him, I made an inciſion the whole length of the tumor, and gave diſcharge to a conſiderable quantity of clear water.

The cyſt was firm and thick, and formed in the common tela cellulola of the chord.

For three days the wouud diſcharged a large quantity of ſerum, but it neither became tumid, nor inflamed; his pulſe became hard, and frequent; he was thirſty, and reſtleſs, and had a languor in his countenance, which I did not like. On the fourth day the diſcharge of water ceaſed, but the inciſion ſtill remained cold, lax and flabby; and was ſo far from ſhewing any tendency to ſuppurate, that, on the contrary, the edges began to be livid.

Bark, and cordial medicines, were preſcribed by the phyſician; and fomentation, pultice, and animated digeſtive dreſſings were applied; but

but to no purpoſe. On the ſixth day he complained of a burning heat in his back and kidneys, while his extremities were cold and damp; on the ſeventh he became delirious, and that evening died.

All the cellular membrane in the pelvis, and about the loins and kidneys, was exceſſively diſtended with air, and in ſeveral places diſcoloured; and in the cavity of the abdomen was a large quantity of bloody water.

SECT. VII.

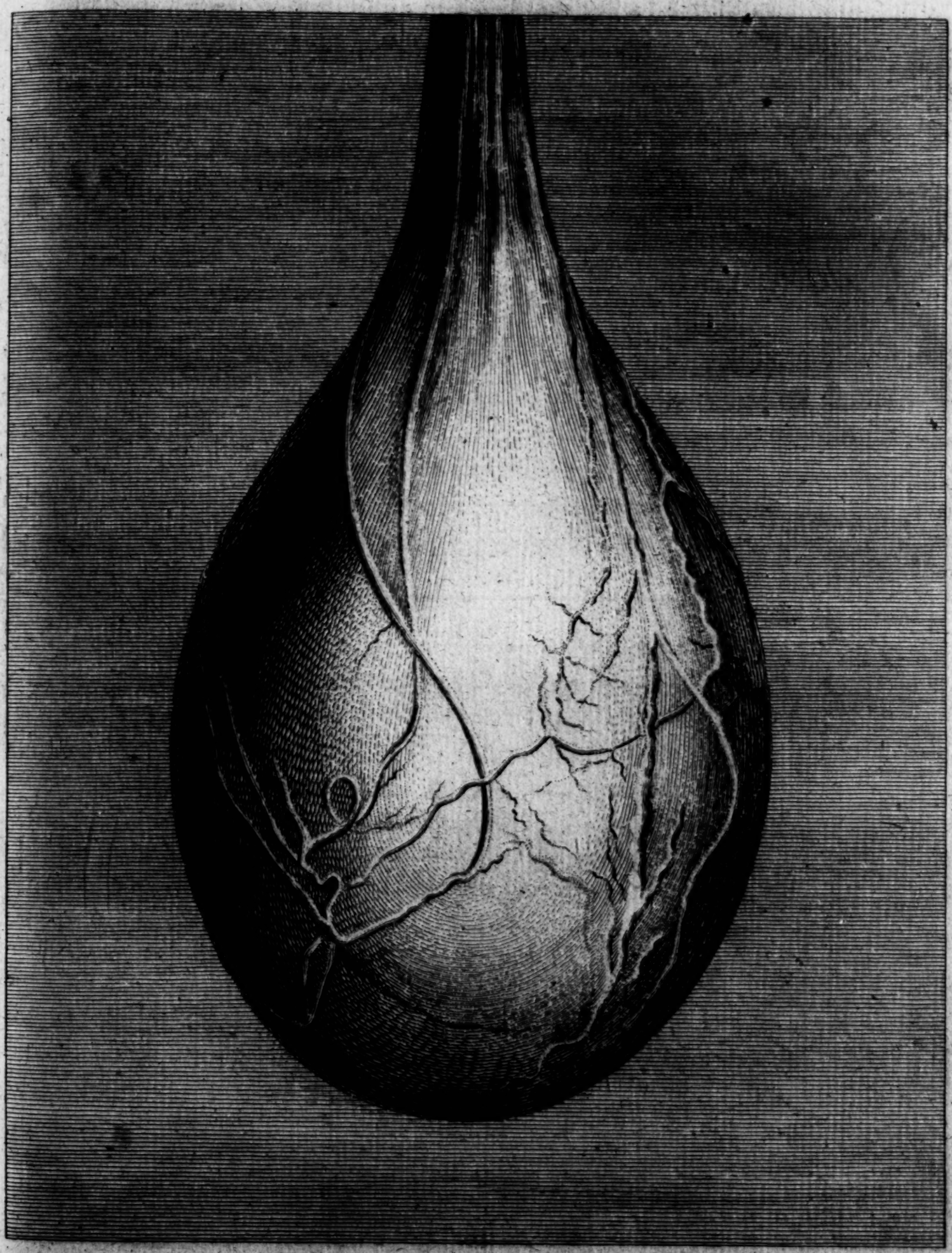
Hydrocele of the Tunica Vaginalis Teſtis.

THE third ſpecies of this diſeaſe, is that which is confined to the vaginal coat, or bag which looſely envelopes the teſticle. In the ſhort anatomical account, already given of the production, ſtructure, and ſituation of this tunic, it has been obſerved, that in a natural, healthy ſtate, its cavity always contains a ſmall quantity of a fine fluid, exhaled from capillary arteries, and conſtantly abſorbed by veſſels appointed for that purpoſe.

This fluid, in the natural ſmall quantity, ſerves to keep the tunica albuginea moiſt, and to prevent a coheſion between it and the vaginalis; a conſequence, which almoſt neceſſarily follows any ſuch diſeaſed ſtate of theſe parts, as prevents the due ſecretion of it. On the contrary, if the quantity depoſited be too large, or if the regular abſorption of it be by any means prevented, it will be gradually accumulated, and, by diſtending the containing bag, will form the diſeaſe in queſtion.

The two preceding ſpecies of hydrocele, have their ſeat in the tunica communis of the ſpermatic veſſels; that is, in the cellular membrane which inveſts them: one by a general diffuſion of lymph thro'

all



all its cells; the other by a collection of it, in one particular cyſt or bag: that which makes our preſent ſubject has no concern or connection with that membrane at all, but is abſolutely confined to the tunica vaginalis teſtis.*

It is a diſeaſe from which no time of life is exempt; not only adults are ſubject to it, but young children are frequently afflicted with it; and infants ſometimes born with it. What is the immediately producing cauſe, I will not take upon me to affirm. Ruyſch is of opinion, that it proceeds from a varicoſe ſtate of the ſpermatic veſſels. What real foundation there may be for ſuch conjecture, I cannot ſay; certain it is, that the ſpermatic veſſels are very frequently found varicoſe, in perſons afflicted with this kind of hydrocele; but whether ſuch ſtate of theſe parts ought to be regarded as a cauſe, or as an effect of the diſeaſe, is a matter worth enquiring into.

In Morgagni are ſome obſervations on the ſtate of the parts concerned, particularly the inſide of the tunica vaginalis, and outſide of the albuginea; which, if repeated and confirmed, may poſſibly lead us on to farther information.

In

* Fallopius, altho' he was unacquainted with the real and true origin and nature of this diſeaſe; and ſuppoſed its manner of production to be very unlike what it really is; has yet given a very juſt account of the appearance, both of this, and of the former: "Alia vero eſt hernia aquoſa, in qua aqua diſtillat per vaſa et venas, occulto modo, ac "ſenſim ad ſcrotum. Hæc autem eſt duplex; alia in qua continetur aqua in *membrana* "*adnata*, et in proprio folliculo; alia in qua continetur in *inguinali tunica quæ teſtem ve-* "*ſtit*. Cognoſcitur aquam eſſe in tunica adnata, *quia ſeparatur teſtis a parte aquoſa mani-* "*bus*; præterea, iſta hernia habebit *propriam circumſcriptionem*, aliquando rotundam, ali- "quando ovalem. Si autem ſit in vaginali, non poſſumus amplius *arripere* et *diſtinguere* "*teſtem* ab hernia; quoniam in eodem loco et aqua, et teſtis ſunt conſtituti."

GAD. FALLOPIUS.

In the mean time, from all the circumſtances attending the complaint, it is pretty clear, that whatever tends to increaſe the ſecretion of the fluid into the ſacculus, beyond the due and neceſſary quantity, or to prevent its being taken up, and carried off, by the proper abſorbent veſſels, muſt contribute to its production; which is ſo ſlow, and gradual, and at the ſame time ſo void of pain, that the patient ſeldom attends to it, until it has arrived to ſome ſize. Not but that it ſometimes is produced very ſuddenly; and in a very ſhort ſpace of time attains conſiderable magnitude.

The ſize and figure of the tumor are various in different people, and under different circumſtances. In general, at its firſt beginning it is rather round; but as it increaſes, it frequently aſſumes a pyriform kind of figure, with its larger extremity downward: ſometimes it is hard, and almoſt incompreſſible; ſo much ſo, that, in ſome few inſtances, it has been miſtaken for an induration of the teſticle: at other times it is ſo ſoft and lax, that both the teſticle, and the fluid ſurrounding it, are eaſily diſcoverable. It is perfectly indolent, in itſelf; though its weight does ſometimes produce ſome ſmall degree of uneaſineſs in the back. The great characteriſtic (as it is called) of this diſeaſe, and on which almoſt all writers have agreed to lay the greateſt ſtreſs, and to reſt their proof of the nature of the diſorder, I mean the tranſparency of the tumor, is the moſt fallible, and uncertain ſign belonging to it: it is a circumſtance which does not depend upon the quantity, color, or conſiſtence of the fluid conſtituting the diſeaſe, ſo much as on the uncertain thickneſs, or thinneſs of the containing bag, and of the common membranes of the ſcrotum.

If they are thin, the fluid limpid, and the accumulation made ſo quick as not to give the tunica vaginalis time to thicken much, the rays of light may ſometimes be ſeen to paſs through the tumor: but this is accidental, and by no means to be depended upon. Whoever would

would be acquainted with this diſorder, muſt learn to diſtinguiſh it by other, and thoſe more certain, marks; or he will be apt to fall into very diſgraceful, as well as pernicious blunders. The color of the fluid is very different and uncertain: ſometimes it is of a pale yellow, or ſtraw-color; ſometimes it is inclined to a greeniſh caſt; ſometimes it is dark, turbid, and bloody; and ſometimes it is perfectly thin and limpid.

In the beginning of the diſeaſe, if the water be accumulated ſlowly, and the tunica vaginalis thin and lax, the teſticle may eaſily be perceived; but if the ſaid tunic be firm, or the water accumulated in any conſiderable quantity, the teſtis cannot be felt at all; and other ſymptoms, or marks, muſt be attended to. In moſt caſes, the ſpermatic veſſels may be diſtinctly felt at their exit from the abdominal muſcle, or in the groin; which will always diſtinguiſh this complaint, from an inteſtinal hernia (the diſeaſe which it is moſt likely to be confounded with). It does indeed now and then happen, that the vaginal coat is diſtended ſo high, and is ſo full, that it is extremely difficult, nay almoſt impoſſible, to feel the ſpermatic proceſs; and it alſo ſometimes happens, that the ſame kind of obſcurity is occaſioned by the addition of an encyſted collection of water in the membrane of the chord; or by the caſe being combined with a true enterocele. Theſe circumſtances are not very frequent, but yet do occur often enough to render it well worth while to mention them; and to ſignify that, when they are met with, recourſe muſt be had to other marks.

The general notion formed of this diſeaſe is, that it conſiſts of a bag, filled with a fluid, in the middle of which the teſticle hangs ſuſpended, and by which it is compleatly ſurrounded.

This idea is not only erroneous, and contrary to fact, but may be productive of very miſchievous conſequences in practice. For from ſuch conception (or rather miſconception) of the ſtate and diſpoſition

of the parts, it may be inferred, that all points of the tumor are equally fit for ſuch operation as may become neceſſary for the diſcharge of the fluid; which is ſo far from being the caſe, that in ſome parts of it, ſuch operation is perfectly ſafe, eaſy, and harmleſs; in other it is hazardous, painful, and may be productive of the moſt dreadful conſequences. Whoever will take the pains to examine the ſtructure and diſpoſition of the two coats of the teſticle (the albuginea and vaginalis), will find, that in one part they are ſo inſeparably united, (being indeed one and the ſame membrane) that it is impoſſible for any thing to inſinuate itſelf between them; while in every other part they are ſo abſolutely unconnected, that from the great dilatability of the latter, a large quantity of fluid may be accumulated.*

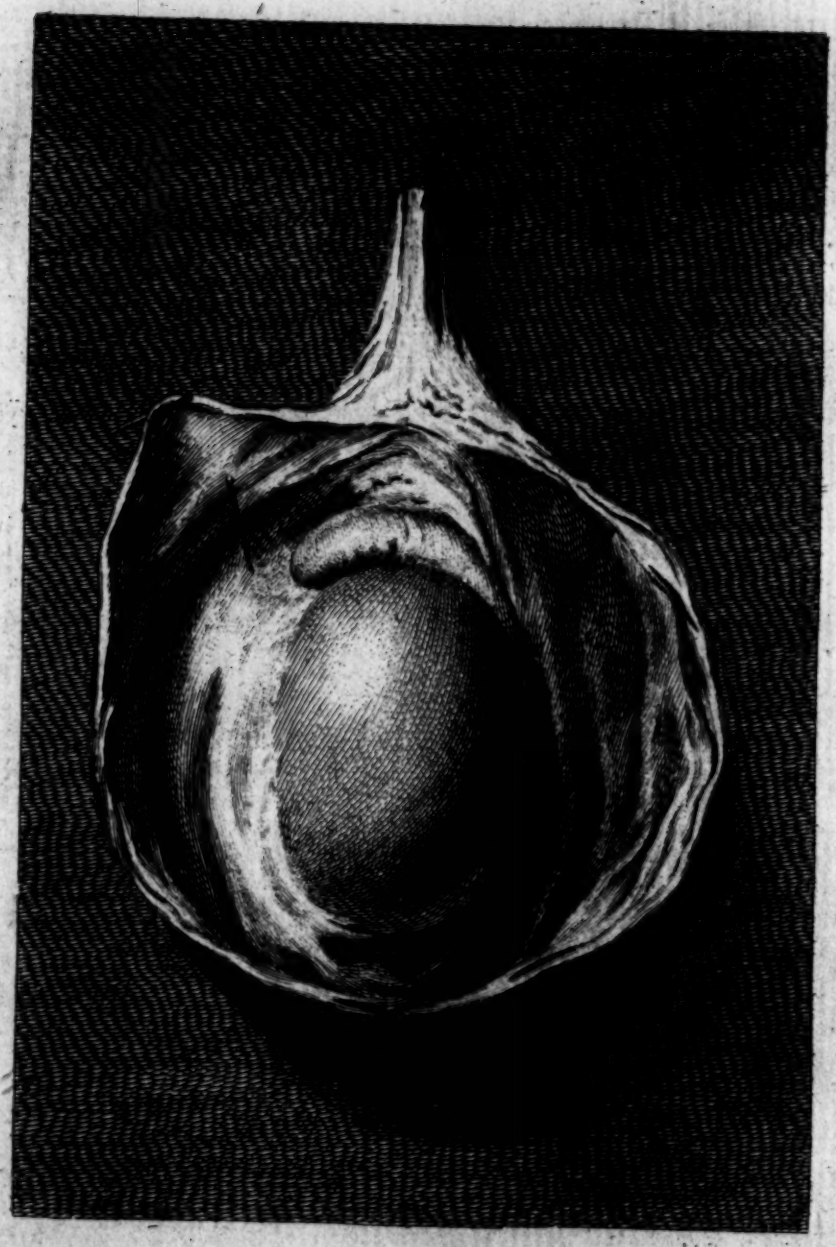
In a hydrocele which is tolerably full, the place of this union is the poſterior, and ſuperior, or rather the poſterior, and middle part of the tumor. A puncture or inciſion made here, cannot only do no ſervice, as it cannot reach the water, and therefore cannot anſwer the intention for which it ought to be made; but muſt injure the teſticle, or its epididymis, and thereby do great miſchief; whereas an opening made in every other part, will not only give diſcharge to the water, but can do no harm, and is free from all kind of danger.

This natural connection between the two tunics, at the upper and hinder part, is the reaſon why, in a ſimple hydrocele, that part of the tumor

* "Humor magna ex parte, in tunica Erithroide appellata, teſticulum ambiente, in *partem anteriorem* colligitur; qua *potiſſimum membrana illa a teſticulo ſeparatur.*"

PAULUS ÆGINETA.

Mr. Le Dran, whoſe character in practical ſurgery ſtands deſervedly high, ſeems to be leſs clear in his idea, and leſs perſpicuous in his account of this diſeaſe, than of moſt others: his account is, "Une veſſie aqueuſe placée ſur l'un de teſticules, auquel elle eſt "adherente; et comme elle devient quelquefois tres groſſe, elle remplit preſque touſ le "ſcrotum." This does not (at leaſt to me) convey an idea that the ſeat of this diſeaſe is within the tunica vaginalis teſtis.



G

tumor feels ſo very unlike to every other. In that, the tunica albuginea, and vaginalis, being immediately continuous, no water can get between them; and therefore, the fingers of an intelligent examiner muſt immediately diſcover the firmneſs, and hardneſs, ariſing from the union of theſe parts: in all others, the two membranes being unconnected, and affording a void ſpace for the collection of water, the fluctuation of it will always be diſtinguiſhable.

This is a circumſtance which muſt for ever diſcriminate the ſimple hydrocele, of the tunica vaginalis, from the anaſarcous ſwelling of the ſcrotum; from the encyſted hydrocele of the chord; and from the inteſtinal hernia. The firſt is every where equal, tumid and ſoft; and every where equally receives, and retains, the impreſſion of the fingers: The ſecond, though circumſcribed, not very compreſſible, and affording the ſenſation of fluctuation, yet does not pit; and is alike to the touch in all parts of it: and in the third, if the teſticle be diſtinguiſhable at all, it is found at the inferior part of the whole tumor.

An indurated, or ſchirrhous teſticle has indeed, very frequently, a quantity of fluid lodged in its vaginal coat; which is a circumſtance not to be wondered at; the diſeaſed ſtate of the gland being ſufficient to account for the non-execution of the abſorbent faculty; and conſequently, for the collection of the water. But although part of this mixed tumor is undoubtedly owing to a fluid, and ſuch fluid as is lodged within the vaginal coat, yet it is a very different diſeaſe from the true ſimple hydrocele, and ought not to be confounded with it; one of theſe marks of the latter being the natural, ſoft, healthy ſtate of the teſticle; and the characteriſtic of the former, being its diſeaſed, and indurated inlargement.*

This

* When I ſay natural, ſoft, and healthy ſtate of the teſticle, I do not mean, that the teſticle, in a true, ſimple, hydrocele, is never altered from its natura lſtate, when unaf-

fected.

This is a point of more conſequence, than it may perhaps, upon a curſory view, ſeem to be. It not only regards the definitions, but the treatment of the diſeaſes; and being rightly underſtood, and attended to, or not, may be productive of much good or ill.

We are, by moſt of the writers on this ſubject, adviſed in operating for the radical cure of an hydrocele, to regard carefully the ſtate and condition of the teſticle; and, if we find it enlarged, hardened, putrid, fungous, or any other way really diſeaſed, to remove it immediately: which advice, within proper limitations, is certainly good. A teſticle in almoſt any of the juſt-mentioned circumſtances, ought undoubtedly to be removed: but theſe cautions have nothing to do with the true, ſimple hydrocele; and can relate only to the diſeaſed, the ſchirrhous, or the cancerous teſticle. When theſe diſorders are the ſubject of conſideration, then ſuch hints and cautions make a very neceſſary part of it; but they can have no concern with the preſent.*

The

* affected by any diſeaſe: I know the contrary; I know that the teſticle, in a hydrocele, is very frequently enlarged in ſize, and relaxed in ſtructure, as well as that its ſpermatic veſſels are often varicoſe: I uſe the words in oppoſition to the diſeaſed indurated ſtate of the ſchirrhous teſtis.

"Namque ubi forte vel putredo, vel ſchirrhus; vel alia quædam corruptio vehe-
"mens teſticulum invaſit, ſalutarius exſcindere." HEISTER.

This is alſo the doctrine of moſt of the writers (a large number in ſurgery) who have copied each other, both in their ideas of diſeaſes, and in their propoſed method of treating them.

Not writing from practice, or from what they have ſeen, they have related circumſtances, under the article of the ſimple hydrocele, which never occur; and have directed a method of conduct, which, if followed, muſt miſlead the ſurgeon, and ſubject the patient to pain, fatigue, and even loſs of parts, without any the leaſt neceſſity. Under the head of radical cure of the ſimple hydrocele by inciſion, Heiſter has mentioned ſeveral circumſtances as neceſſary to be attended to for the regulation of the operator's conduct,

The truth is, that the majority both of the ancient writers and practitioners, miſled by the ſound of the term hydrocele, have miſtaken a mere accidental effect, for a cauſe; and have ſuppoſed that the fluid contained in the tunica vaginalis teſtis may not only conſtitute a diſeaſe by the mere diſtenſion of it, but may be productive of other diſeaſes of the teſticle itſelf. They have fancied the water to have in itſelf a noxious quality, or diſpoſition; and that the teſticle, by merely ſwimming in it, might become diſeaſed, and unfit for uſe; whereas in caſes wherein a diſordered ſtate of the teſtis accompanies a collection of water in its vaginal coat, the truth is juſt the reverſe of this

duct, which circumſtances do not occur in that diſeaſe: "Deligari autem vaſa ſperma-
"tica filo, reſcindique teſticulus omnino debet ſicuti in cap. de ſarcocele docuimus, quo-
"ties vaſa ſeminalia, non inſigniter tantum induruerunt, ſed magnis quoque cruciatibus
"hominem ægrum affligunt. Deſpiciendum quoque porro eſt num teſticulus tumefac-
"tus forte materiam aliquam fluidam, ſicut quandoque contingit, intus contineat. Si
"quid enim fluidi intus hærere tactu percipimus, aut lympham, aut pus inibi conſiſtere
"rectiſſime colligimus. Interim neque tunc *reſcindere* continuo, (ut nonnulli ſolent)
"ſed incidere potius, atque expurgare teſticulum iſtum conveniet, *&c.* Sed ſi forte ſi-
"mul nimis jam tunc induratus, vel corruptus idem inveniatur, predicta ratione, ligan-
"dus et reſecandus, ne in carcinoma forte abeat."

That ſuch ſtate of the ſpermatic veſſels and teſticle do occur, is beyond all doubt, but not in the ſimple hydrocele; not in the hydrocele that any rational practitioner can poſſibly deem fit, for the attempt for the radical cure by inciſion. Neither is it poſſible for a man, who underſtands the diſeaſe at all, not to be acquainted with theſe circumſtances before he attempts ſuch operation; and if he is previouſly acquainted with them, he muſt be a very extraordinary man indeed to ſet about relieving them in ſuch a manner. If the ſtate of the teſticle and its veſſels be ſuch as to require caſtration (a thing always capable of being known beforehand) let that operation at once be performed, in a proper and expeditious manner, and not by piece-meal, as it is here deſcribed. If caſtration be not requiſite, neither can any other part of the operation (with regard to the teſticle) be ſo; for notwithſtanding theſe deſcriptions of inciſions into, and expurgations of, diſeaſed teſticles may make a figure in books, they are very unfit to be introduced into practice. They never can do good, they muſt do unwarrantable, and generally irremediable miſchief.

this ſuppoſition: the teſtis is firſt diſeaſed, and the faculty of equal, regular abſorption thereby interrupted; by which means a quantity of fluid is accumulated, and that mixed appearance produced, which is not improperly called *hydro-ſarcocele*. But in this caſe, the extravaſation of water is really the conſequence of the morbid ſtate of the gland; and (being ſtill mere ſimple lymph) neither is, nor can be the cauſe of it.

They who chuſe it, may call this a ſpecies of hydrocele; and the literal ſenſe of the word will certainly vindicate them; but they will by that means run the riſque of confounding together, two things extremely unlike to each other, and which require very different treatment: I mean the true ſimple hydrocele, in which the teſticle is ſoft, and ſound, (only perhaps a little more lax, and larger than ordinary,) and the hydro-ſarcocele, in which the teſtis is not only enlarged, but hardened, and not in a ſound, or healthy ſtate: the former of theſe will permit ſuch treatment with perfect ſafety, but in the other, may bring the patient into a ſtate both of pain and hazard*.

It may indeed, and, does ſometimes become neceſſary to let out the water from the vaginal coat of a teſticle, in ſome degree diſeaſed; but this ſhould always be done with caution, and under a guarded prognoſtic; leſt the patient be not only diſappointed, by not having that permanent relief, which for want of better information he may be induced to expect; but be alſo (poſſibly) ſubjected to other unexpected inconveniences from the attempt.

Upon

* Some inſtances of this are related in this tract. Hildanus has given a particular account of a miſtake of this kind: "Inciſo ſcroto plurimum affluxit aquæ; hinc primo "ſubſedit ſcrotum; poſt paucos tamen dies ſecutus eſt dolor, vehemens inflammatio et "cancroſum ulcus, maximeque malignum; quod adeo impetuoſe adjacentes partes occu-"pavit, ut ipſius malignitas nullo modo arceri poſſit; ſed intra paucos dies maximo "cum cruciatu e vita deceſſit." FAB. HILDANUS.

Upon the whole, as juſt definitions, and accurate diſtinctions of diſeaſes from each other, are abſolutely neceſſary towards underſtanding them rightly, it ſeems to me much more proper to confine the term hydrocele to the mere ſimple accumulation of a fluid within the coats of the ſound teſticle, and to refer all thoſe which either are combined with, or proceed from diſeaſes of that gland, to another claſs.

When the diſeaſe is a perfect, true, ſimple hydrocele, the teſticle, though frequently ſomewhat inlarged, and perhaps looſened in its vaſcular texture, is nevertheleſs (as I have already obſerved) ſound, healthy, and capable of executing its proper office; neither is the ſpermatic chord any way altered from a natural ſtate, except that its veſſels are generally ſomewhat dilated; neither of which circumſtances are objections either to the palliative or radical cure of the diſeaſe. But in thoſe diſorders, which in ſome degree reſemble this, the caſe is different; either the teſticle, or ſpermatic chord, or both, bearing evident marks of a diſeaſed ſtate. In the true, ſimple hydrocele, the water is accumulated merely from the non-execution of the office of the abſorbent veſſels; which, (whatever ultimate cauſe it may have) leaves no appearance of real diſeaſe on the parts: in all the other collections of fluid in this part, there are ſuch appearances and marks of diſtemper, as may clearly convince us, that the extravaſation is only a conſequence of ſuch ſtate.

The two principal complaints, liable to be miſtaken for an hydrocele, are, that kind of ſchirrhous teſticle in which an extravaſation of fluid is made in the tunica vaginalis; and the venereal induration of the teſticle, attended with the ſame circumſtance. One of theſe is always a diſeaſe of the general habit; the other too often ſo. One requires, and generally ſubmits to, a proper courſe of ſpecific remedies; for the other (notwithſtanding all that has been ſaid on the ſubject) we as yet know of none; and therefore it is ſeldom cured but by total removal.

In neither of these, can the mere discharge of the fluid contribute any thing material toward a cure; and in both of them such attempt, injudiciously made, has often proved both painful and hazardous.

In the true venereal sarcocele, or indurated testis, the disease ought always to be eradicated from the habit before any attempt be made locally: the mere discharge of the water can never remove the obstruction in the gland; but when such obstruction has been, by proper remedies, removed, it is no uncommon thing to have the extravasated fluid again absorbed: or if it be not, and any operation becomes necessary, a soft, easy, healthy, state of the testicle, is certainly preferable to an indurated diseased one.

These two cases; or, to speak more properly, these two states of the testicle, although they agree in this one circumstance of not being essentially relieved by the mere evacuation of the water, do yet differ so widely in almost every other, that it behoves practitioners to be very careful in distinguishing between them. That method of treating the venereal induration, which is most frequently successful, will prove highly prejudicial in the schirrhous hardness. By mercury, in judicious hands, the pocky patient's disease may be removed, and his health restored: but I have hardly ever seen a schirrhus or cancer that was not exasperated, and made worse by it. Or, if that does not happen, yet, a mercurial course, in such case, will always occasion a loss of time, which is not always retrievable. In short, he who treats a schirrhous testicle as he ought to do a venereal one, will not cure the disease, but waste his patient's time, and hurt his general health: and he who treats a venereal one as he most frequently ought to do a schirrhous, will, without any necessity, submit his patient to a painful operation, and thereby deprive him of a part very essential to him as a man.

CASE

CASE XV.

A Gentleman, about thirty years old, ſhewed me his teſticle, which was both enlarged, and hardened, and had very palpably a quantity of fluid in the vaginal coat. He had been told, that it was a water rupture, and that it might be immediately cured by means of a ſmall inciſion.

The whole teſticle and epididymis was (as I have already ſaid) large, and hard; and ſo was the vas deferens, and part of the ſpermatic proceſs; but there was no kind of inequality on the ſurface; neither did it give the patient any pain, except what proceeded from its mere weight. He had ſome brown ſpots on his breaſt; a hardneſs below the frænum penis; a raggedneſs and induration of the edges of the ſinus of the left tonſil; a pale plumbean countenance; and complained much of frequent pains in his knees, and elbows.

I made no ſcruple to inform him, that he appeared to me to be poxed; and that I did verily believe, that the diſorder in his teſticle aroſe from the ſame cauſe. I took pains to diſſuade him from ſubmitting to any attempt toward curing his local complaint in the teſtis, until he ſhould have got rid of the diſeaſe which had infected his whole habit, by aſſuring him, that if what had been propoſed to him was intended merely to let out the water, it could not even contribute to his being made well; and that if more than that was deſigned, he might probably experience more harm than good, from the attempt. Not ſatisfied with my opinion he went to Mr. Sainthill, who gave him the ſame kind of advice.

In a little time he applied to a gentleman, well known for promiſing impoſſibilities; who told him, that this was a diſeaſe with which

the faculty were perfectly unacquainted; and if he would give him ten guineas, and take a lodging near him, he would undertake to cure him in a week.

He made an inciſion of about half an inch in length, in the very inferior part of the tumor, and let out a ſmall quantity of bloody water; and then applied a pledgit of lint, and a piece of ſticking-plaſter. The patient paſſed the night in a good deal of pain, and in the morning found his teſticle much ſwelled, and very uneaſy. He ſent for his operator, who ſaid, that this was of no conſequence, and that if he would keep quiet that day, he would be very well the next. On the third day his teſticle was ſo large, ſo inflamed, and ſo painful, that he became exceedingly alarmed, and ſent for me.

I found the ſcrotum highly inflamed; the teſticle and ſpermatic proceſs, large and hard; his pain exceedingly great; his pulſe hard, full, and frequent; and his ſkin hot and dry. I bled him freely, and ordered him a glyſter, and a lenient purge, and wrapped the teſticle up in a ſoft pultice. Next day, both the patient and the parts were in the ſame ſtate. I bled him again; and his glyſter and purge having thoroughly emptied him, I gave him two grains extract. thebaic. and directed that he ſhould take one grain every ſix hours, until ſome eaſe of reſt was procured. Two days were ſpent before any remiſſion of ſymptoms was obtained: and it was near a fortnight, before the conſtant uſe and application of fomentation, cataplaſm, &c. together with a general antiphlogiſtic regimen, and confinement to bed the whole time, had reduced the teſticle to ſuch ſtate as to bear examination. When it became capable of this, it was found large, and hard, but without any water in the tunica vaginalis. His general habit being recruited, by a proper regimen, country air, and the bark; he was then put into a mercurial courſe, by inunction; under which, as all his

his other ſymptoms gradually diſappeared, ſo likewiſe did his induration of the teſticle.

CASE XVI.

A POOR labouring man in Eſſex, got a venereal hernia humoralis. As his daily work would not permit him to take proper care of himſelf, it was a conſiderable while before he had got rid of his inflammatory ſymptoms; and when he had ſo done, a part of the teſticle and the whole epididymis were left hard, and rather too large. In getting over a high ſtile he miſſed his footſtep, and ſtruck his ſcrotum with violence againſt the upper rail: the blow gave him exceſſive pain for ſome minutes; but that ſoon ceaſed, and he went on with his day's work. Next day his teſticle appeared ſwelled, and was painful to the touch; but as the man had no ſubſiſtence but from his labour, he was obliged to follow it. At the end of a week, he was ſo much worſe that he could go out no longer; and making his caſe known to ſome gentlemen, who uſed to employ him, a neighbouring practitioner was deſired to viſit him. A fluctuation being felt, it was ſuppoſed to be matter; and a warm adheſive plaſter was applied to forward it. In a few days an opening was made for diſcharge of the ſuppoſed *pus*, but nothing followed except a very ſmall quantity of bloody ſerum. The ſmalneſs of the quantity, and the nature of the fluid, joined to the very ſmall ſubſidence of the tumor, induced the ſurgeon to think he had not gone deep enough; and to thruſt a lancet farther in: this was attended with acute pain, and followed by a copious hæmorrhage, which was not eaſily reſtrained; or, to ſpeak more properly, did not ſoon ceaſe. Inflammation, pain, tumefaction, &c. followed this me-

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thod of proceeding; and at the end of a week, the man was brought to St. Bartholomew's Hoſpital.

Upon mere ſight of the part, I ſhould have ſuppoſed the caſe to have been a ſchirrus of the malignant kind: the teſticle, or ſcrotum, was large, hard, unequal, of a deep red duſky colour, with diſtended veins, and ſo painful that it could not bear the ſlighteſt touch; and the ſpermatic proceſs was far from being in a natural or a healthy ſtate. The man complained of conſtant pain in his back; the wound diſcharged a bloody, offenſive gleet; and long pain, and want of reſt, had given him a very diſeaſed aſpect.

Nothing but the clear, and circumſtantial account, which both the man, and the ſurgeon who had attended him (and who came with him to the hoſpital) gave, could have induced me to have thought the caſe to be any other than what I have juſt mentioned; but they were ſo poſitive, and ſo conſiſtent, that I thought myſelf obliged to regard what they ſaid, and to act accordingly.

By phlebotomy, evacuations, anodynes, reſt, a low regimen, and the general antiphlogiſtic method, purſued vigorouſly, and long, he got a cure.

CASE XVII.

A Gentleman about thirty-ſeven years old, apparently in good health, aſked my advice concerning a diſeaſed appearance in his ſcrotum, for the relief of which he had come from a conſiderable diſtance to this town.

The teſticle was not much increaſed in ſize, but had loſt its equality of ſurface, and was craggy, and very hard; the vas deferens and epididymis were in the ſame indurated ſtate; the ſpermatic chord was

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ſomewhat varicoſe, but not hard; and in the cavity of the tunica vaginalis was palpably a ſmall quantity of fluid. It was ſomewhat tender to the touch; but the pain upon being handled was very ſlight, in compariſon of what was felt an hour or two after ſuch examination, at which time, although the pains were not conſtant, but rather attacked the part by intervals, yet they were extremely acute.

He ſaid, that he had been told that his complaint was venereal, (to which opinion his method of life much inclined him to adhere) and that he had alſo a beginning hydrocele. I replied, that I wiſhed, for his ſake, that I could think ſo too; but that I had no doubt of its being a ſchirrus, which would not long remain quiet. He ſeemed diſſatisfied; and ſaid, that conſidering the perſon who had pronounced his caſe to be venereal was a man of character in his profeſſion, and whoſe judgment he believed was good, he thought I was rather too peremptory.

I deſired him to take the opinion of ſome people of eminence in London, and named ſome to him: whether he did or not, I know not; but in about a fortnight or three weeks, I received a letter from him out of the country, ſignifying, that his friend was ſo clear, in his firſt opinion, that the caſe was venereal, that he had prevailed on him to ſubmit to a ſalivation for it; and that he only now deſired my opinion concerning the beſt method of procuring it; that is, whether he ſhould attempt it by internals, or by mercurial inunction. I wrote back, that I was ſorry to differ from his friend, or to ſeem too tenacious of, or partial to, my own opinion, and ſincerely wiſhed I might be miſtaken; that I looked upon the method of ſalivating by inunction to be in general the leaſt fatiguing or prejudicial to the conſtitution; and that in the caſe of particular, local induration, it certainly had the advantage of being applied immediately to the part affected: and therefore, if I could think that his complaint was venereal, I ſhould

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undoubtedly prefer the uſe of the ointment to every internal means; but that I was ſo thoroughly ſatisfied that it was not, and ſo averſe to the uſe of mercury for him, that I deſired him to keep that letter as my proteſt againſt the proceſs he was going into.

The ointment was freely uſed for above a month, but no alteration appeared in the teſticle, except that it became rather larger and more tender to the touch.

As the mercurial ointment happened not to affect his mouth, or make him ſpit any conſiderable quantity, the inefficacy of it with regard to the teſticle was imputed to that; and a courſe of the mercurius calcinatus with the kermes mineral, undertaken and followed for another month. During this, the teſticle manifeſtly increaſed in ſize, became more unequal, and more frequently painful. He now came to London again, and calling on me, told me all that had paſſed; but being ſtill poſſeſſed with the venereal idea, ſaid that he was come hither in order to try the Liſbon diet-drink, or ſomething of that kind.

At my requeſt he ſhewed his diſeaſe to Mr. Nourſe and Mr. Saint-hill, who were clear that it was not venereal, and adviſed the operation. This he would not hear of at preſent, having got it into his head that, when every thing elſe had been tried, it would always be time enough for that. During three weeks, that he ſtaid here, he drank, by the direction of ſome friend, every day a quart of ſtrong decoction of ſarſaparilla, with ſome of the ſublimate ſolution in it. The teſticle continued to increaſe, and the ſpermatic vein became ſomewhat varicoſe: but ſtill there was a fair opportunity for extirpation. He did now indeed, begin to incline to it; but being conſiderably reduced in ſtrength and fleſh by what he had taken, he would not comply with it until he had been in the country, and was ſomewhat recruited. To which I could not object, as he then did not appear to

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be a fit ſubject for ſuch an operation; I mean, on account of his great reduction of ſtrength.

At the end of two months, he came to me again. I was much concerned to ſee him ſo much altered for the worſe: he was emaciated to the greateſt degree; and had ſuch a leaden paleneſs in his countenance, that had I known nothing of him, I ſhould have concluded that ſuch a man had a cancer about him. He had totally loſt his appetite, and was never free from pain: his teſticle was at leaſt twice the ſize as when I laſt had ſeen it, and the whole proceſs, quite up to the belly, large, hard, and knotty.

I would now by no means propoſe the operation; a conſultation of phyſicians was therefore had, in which the ſolanum was preſcribed. This was immediately tried, and proved here, as it has wherever I have ſeen it uſed; that is, the patient was much diſordered by it in general, and received no benefit with regard to his diſeaſe; but as this affair happened not long after this poiſon had been in a kind of vogue, it was repeated until the patient could hardly ſee or hold his hand ſtill. When this was laid aſide, recourſe was had to the cicuta, which, as uſual, was perfectly inefficacious: to it, however, a fair trial was given. And when the poor man had thus made experiment of our moſt boaſted ſpecifics, and was ſatisfied, that no honeſt or judicious man would attempt the operation, we had recourſe to opium, during a few weeks that he exiſted.

Whdn dead, I examined him.

The ſpermatic proceſs was thoroughly diſeaſed, about half-way up from the groin to the kidney; that is, it was inlarged, hard, and very full of knots; but I did not find any apparent diſeaſe in any other part within the abdomen.

CASE. XVIII.

I Received a letter from Lincolnſhire, in the month of November, deſiring to know whether that ſeaſon of the year was an improper one for the operation of caſtration, in the caſe of a ſchirrous teſticle? for that, if I did not, a patient labouring under ſuch complaint would ſet out immediately upon the receipt of my anſwer.

I wrote back, that the ſtate and nature of the diſeaſe were of much more conſequence toward determining the propriety or impropriety of an operation, than the time of the year could be: and therefore I deſired either that I might have a circumſtantial account of the caſe, from ſome medical man, or that the patient would come to London. In about a week I received another letter, containing the following account.

That the patient was thirty-five years old; that, previous to the appearance of the diſeaſe in the teſticle, he had for ſome weeks been troubled with frequent and acute pains in his back and loins; that the teſticle was conſiderably inlarged, indurated, and (in its poſterior part) unequal in its ſurface; that part of the ſpermatic proceſs, neareſt to the teſtis, was too hard alſo; that the whole of it was now perfectly free from pain; that the patient was a married man, much ſubject to ſcorbutic eruptions, and flying pains, from the ſame cauſe; that his appetite was fallen off, and his aſpect become pale and wan; that he had taken a conſiderable quantity of the cicuta, and as much of the infuſion of the ſolanum as his weak ſtate would bear; that from the former he had neither experienced good nor harm, but that the latter had diſagreed with him extremely; that he was now determined for the operation; and that he would be in London in a few days.

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In leſs than a fortnight he came to me. He was extremely thin; and had a countenance ſo pale, and eyes ſo languid, that I made no doubt that his nights were ſleepleſs. His teſticle was large, and hard, but perfectly equal, and perfectly indolent; the tunica vaginalis contained a ſmall quantity of limpid fluid; and the vas deferens, and epididymis had that kind of inlargement, and induration, which frequently accompanies a hernia humoralis; but the ſpermatic veſſels were in a natural ſtate, of proper ſize, and free from all kind of induration. He was ſo hoarſe, that I could hardly hear him ſpeak; and ſo deaf, that it was as difficult to make him hear. He complained much of frequent pains in his ſhoulders, and elbows, one of the latter of which was conſiderably ſtiffened. The biceps muſcle of the left arm, was hard, and gummy; on one of his eyebrows was a large ſpot, with a thin ſcab on it; and, between the ſcapulæ, were four or five of the ſame.

I told him, that I had no doubt that his deafneſs, hoarſeneſs, pain, ſpots, ſwellings, &c. were all venereal; and that I was much inclined to believe, that the complaint in his teſticle proceeded from the ſame cauſe. He did as venereal patients are frequently too apt to do; that is, he endeavoured to render my opinion improbable, by atteſting, that there had been an interval of ſome years ſince he had held any illicit commerce with any woman whom he could ſuppoſe capable of injuring him; that he had been two or three years married; had only had a ſlight ſhanker, of which he was ſure he had been well cured, &c.

I anſwered, that I was clear in my opinion; and would undertake to ſerve him on no other principle; but deſired him to take the judgment of ſome other gentlemen of the profeſſion; which he did, and returned to me again with an account, that they thought of his caſe as I had done.

The weakned reduced ſtate in which he was, and a natural diſpoſition which he had to a hæmoptyſis, obliged me to proceed very cautiouſly: his ſtomach would bear no medicine of the mercurial kind; and a very little acceleration of pulſe made him hawk up a bloody phlegm. I therefore determined upon the ointment in ſmall quantities, and to do in this caſe what I have done in ſimilar caſes ſeveral times; that is, as ſoon as ever the mercury raiſed the pulſe, or began to affect the mouth, I ordered him to take a decoct. corticis twice or thrice a day, through the whole of the ſalivation.

By theſe means he got rid of all his complaints, both general and particular, and came out of his mercurial courſe with a more healthy aſpect, and more fleſh on his bones, than he went into it.

Before I proceed to give an account of the means uſed for the relief, or cure, of the hydrocele of the tunica vaginalis teſtis, it may not be improper to inform the reader that I have twice in my life ſeen this diſeaſe, though in a confirmed ſtate, and in adult patients, diſperſe.

CASE XIX.

A Gentleman about forty-five years old, conſulted me on account of a ſwelling in his ſcrotum, which was not very large, but palpably contained a fluid, and was ſo circumſtanced in every reſpect, as to prove it to be a true hydrocele of the vaginal tunic; from which I adviſed him to have the water immediately drawn off.

As it was not very troubleſome to him, he did not chooſe to have it done then; but went away, telling me, that I ſhould ſoon ſee him again. He took the opinions of two others, both of whom told him the ſame thing, and gave him the ſame advice.

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At the end of half a year he came to me again, with the ſcrotum full, and of a pyriform figure, and ſo large as to be very evident thro' his breeches.

I would have tapped him immediately, but as he had never ſeen any thing of the kind, I could not convince him that it would not confine him the next day; and as he had ſome particular buſineſs to tranſact in the country, he choſe to go thither firſt, and to ſubmit to the operation when he ſhould return from thence.

I ſaw no more of him for near two months; at the end of which time he called upon me, and ſhewed me a ſcrotum perfectly empty, and free from diſeaſe.

Taking it for granted that he had been tapped, I aſked him who had done it for him: he told me, that before he could finiſh the buſineſs, for which he went into the country, he was ſeized (for the firſt time in his life) with a ſevere fit of the gout; which had confined him to his bed for ſix weeks, during which confinement his ſwelling had gradually, and totally diſſipated.

I have often ſeen him ſince, and he ſtill remains perfectly free from all appearance of diſeaſe.

CASE XX.

A Middle-aged man ſhewed me a hydrocele of the vaginal tunic, which had been near two years collecting, but from which the water had never been drawn; I adviſed him to have it done ſoon, and he fixed on the next morning.

In his way home, he got fuddled; fell down into the area of an empty houſe, and in his fall ſtruck his ſcrotum againſt a piece of ſcaffolding.

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In the morning early he ſent for me. I found him in bed, with a great ecchymoſis under the ſkin of the ſcrotum, which was much ſwollen, and very painful; I would have perſuaded him to have permitted me to let the water out, (thinking thereby to have taken off part of the tenſion) but he would not conſent; and I was obliged to have recourſe to fomentation, cataplaſm, &c.

In about a fortnight all the ecchymoſis was diſſipated, and all the ſwelling from the ſound ſide of the ſcrotum; and both the patient, and myſelf thought, that the tumor from the hydrocele was conſiderably leſs, than it was before the accident. By perſiſting in the ſame method, for about three weeks more, the whole of it diſappeared, nor has returned ſince. Nor have I, ever ſince, ſeen the ſame attempt ſucceed.

SECT. VIII.

Methods of curing the Hydrocele of the Vaginal Coat.

THE methods of cure (as they are called) in this ſpecies of hydrocele, though various, are reducible to two, (viz.) the palliative, or that which pretends only to relieve the diſeaſe in preſent, by diſcharging the fluid; and the radical, or that which aims at a perfect cure, without leaving a poſſibility of relapſe. The end of the former is accompliſhed by merely opening the containing bag in ſuch manner as to let out the water: that of the latter cannot be obtained, unleſs the cavity of that bag be aboliſhed; and no receptacle for a future accumulation left. One may be practiſed at all times of the patient's life; and in *almoſt* any ſtate of health and habit: the other lies

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under ſome reſtraints and prohibitions; ariſing from the circumſtances of age, conſtitution, ſtate of the parts, &c. &c. &c.

The palliative cure, (as I have juſt obſerved) conſiſts in merely giving diſcharge to the fluid which is contained in, and diſtends the tunica vaginalis.

The operation by which this may be accompliſhed, is a very ſimple one. The only circumſtances requiring our attention in it, are, the inſtrument wherewith we would perform it; and the place or part of the tumor, into which ſuch inſtrument ſhould be paſſed.

The two inſtruments in uſe, are the common bleeding lancet, and the trochar.

The former, having the finer point, may poſſibly paſs in rather the eaſier, (though the difference is hardly perceptible) but is, in my opinion, liable to inconveniences, to which the latter is not. The trochar, by means of its cannula, ſecures the exit of the whole fluid without a poſſibility of prevention; the lancet cannot. And therefore it frequently happens when this inſtrument is uſed, either, that ſome of the water is left behind, or that ſome degree of handling and ſqueezing is required for its expulſion; or, that the introduction of a probe, or a director, or ſome ſuch inſtrument, becomes neceſſary for the ſame purpoſe. The former of theſe may in ſome habits be productive of inflammation; * the latter prolongs, what would otherwiſe be a ſhort operation, and multiplies the neceſſary inſtruments; which, in every operation in ſurgery, is wrong. To which it may be added, that if any of the fluid be left in the vaginal coat, or inſinuates itſelf into the cells of the dartos, the patient will have reaſon to think the operation imperfect, and to fear that he ſhall not reap even the temporary advantage.

* A conſequence which I have ſeen to proceed from it, attended with a ſlough of the whole dartos, and which I am much inclined to believe would not have happened in the ſame perſon, had the water been drawn off by a trochar.

advantage which he expected. The place where this puncture ought to be made, is a circumſtance of much more real conſequence; the ſucceſs of the attempt, the eaſe, and even ſometimes the ſafety of the patient depending upon it.

Whoever conceives, as many have done, and ſome ſtill do, that the teſticle hangs looſe in the middle of the water within the vaginal coat (like a clapper within a bell) muſt alſo ſuppoſe that every part of the general tumor is equally fit, and proper for this operation. The idea is erroneous, and the experiment may prove highly miſchievous. All the anterior and lateral parts of the vaginal coat, are looſe and detached from the albuginea; in its poſterior, and ſuperior part, theſe two tunics make one; conſequently the teſticle is, as it were, affixed to the poſterior and ſuperior part of the cavity of the ſac of an hydrocele; and, conſequently, the water, or fluid can never get quite round it. This being the ſtate of the caſe, the operation ought always to be performed on that part of the tumor, where the two coats are at the greateſt diſtance from each other; and where the fluid muſt therefore be accumulated in the largeſt quantity, and never on that part of it where the fluid cannot poſſibly be. The conſequence of acting otherwiſe muſt not only produce a diſappointment, by not reaching the ſaid fluid; but may prove, and has proved highly, and even fatally, miſchievous to the patient.

It was a cuſtom formerly, after performing this operation, to make uſe of fomentations, and diſcutient applications, upon a ſuppoſition that by ſuch means a return of the diſeaſe might be prevented. Among the old writers, are to be found the forms of medicines to be applied to the groin and ſcrotum, to prevent a future deſcent of the fluid; but anatomy, and experience, have proved the falſhood of ſuch ſuppoſition, and the abſurdity of ſuch applications: the preſent practitioners content themſelves with a bit of lint, and a plaſter; and if

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the ſcrotum has been conſiderably diſtended, they ſuſpend it in a bag truſs; and give the patient no farther trouble.

In moſt people, the orifice thus made heals in a few hours, (like that made for blood-letting;) but in ſome habits, and circumſtances, it inflames and feſters: this feſtering is generally ſuperficial only, and is ſoon quieted by any ſimple dreſſing; but it ſometimes is ſo conſiderable, and extends ſo deep, as to affect the vaginal coat, and by accident produce a radical cure. I have alſo ſeen it prove ſtill more troubleſome, and even fatal: but then the circumſtances both of the patient, and of the caſe, have been particular, and ſuch as required attention. (See Caſes 21, and 22.)

Whether it aroſe from a fear of wounding the teſticle in the operation, or from a ſuppoſition that while the quantity was ſmall, it was more likely to diſperſe; or that while there was but little fluid they did not think the diſeaſe ſufficiently characteriſed; or from ſome other reaſon, which they have not thought fit to give us; but many writers of good authority, (and among them Mr. Serjeant Wiſeman,) have forbid the puncture in an adult, while the quantity may be ſuppoſed to be under a pint: which reſtriction is ſtill ſcrupulouſly attended to by many practitioners, to the no ſmall trouble and inconvenience of their patients.

When there is a ſufficient quantity of fluid to keep the teſticle from the inſtrument, there can be no reaſon for deferring the diſcharge; and the ſingle point on which this argument ought to reſt, is this: "Whether the abſorbent veſſels, by which the extravaſation ſhould be "prevented, are more likely to reaſſume their office, while the vaginal "coat is thin, and has ſuffered but little violence from diſtenſion; or "after it has been ſtretched, and diſtended, to ten or perhaps twenty "times its natural capacity; and by ſuch diſtenſion is (like all other "membranes) become thick, hard, and tough." For my own part, I

think the probabillity ſo much more on the ſide of the former, that I ſhould never heſitate a moment about letting out the water, as ſoon as I found that the puncture could be made ſecurely. And from what has happened within the ſmall circle of my own experience, I am inclined to believe, that if it was performed more early than it generally is, it might ſometimes prevent the return of the diſeaſe.

CASE XXI.

A Gentleman, turned of ſixty, came to me with an hydrocele of the tunica vaginalis.

He was corpulent, full habited, inclined to be aſthmatic, and ſubject to an irregular kind of gouty inflammation, which attacked different parts of him, at different times. The diſeaſe was on the right ſide, the ſcrotum much diſtended, and on the ſkin of it was an inflammatory kind of bluſh. His pulſe was hard, and as I thought too frequent, and he ſeemed to me to have a degree of heat, and thirſt, not conſiſtent with health. His age, his habit, his general ſtate, and what I apprehended to be the ſtate of the ſac, all forbade any attempt but the puncture; and I took ſome pains to diſſuade him from that, until he ſhould have removed both his general complaints, and the local inflammation on the ſcrotum. He ſaid, that he felt himſelf perfectly well: that he was ſure he had no gout about him then; that what I took for an inflammation on the ſcrotum was only a ſcorbutic eruption to which he was frequently ſubject; and concluded with a hint, that he thought whatever ſhould be done previous to letting out the water, could be deſigned only for my own benefit, by lengthening the time of my attendance.

I pierced the middle and anterior part of the ſcrotum with a ſmall trochar, and drew off near a quart of a greeniſh fluid; I put a bit of lint and plaſter on the orifice, and as the empty ſcrotum hung very looſe, and flabby, I perſuaded him to let it be ſuſpended in a bag truſs.

In the afternoon he went out; and at night finding that the plaſter was rubbed off, and thinking that the ſuſpenſory was put on for no other reaſon, but merely to keep the dreſſing on, he took off his bandage.

Next day he went out again, walked a good deal, drank freely after dinner, and when he came to his lodging in the evening he went to bed much out of order. In the night he had a ſevere rigor, for which he took a large ſpoonful of a tincture of ſnake-root and ſaffron, which he always kept by him.

On the third day, finding his ſcrotum much ſwollen, and very uneaſy, he ſent for me.

I found him in bed, complaining of great pain in the lower part of his belly, and groin: his pulſe was quick, hard, and irregular; his ſkin hot; his tongue dry, and black: his countenance flushed; and his intellects not quite ſteady. His ſcrotum was ſwelled and inflamed all over; and in a part, conſiderably diſtant from the puncture, was a mortified ſpot as big as a ſhilling.

After I had dreſſed him, I deſired, as he was quite a ſtranger to me, as well as to the people of the houſe where he lodged, that he might have more aſſiſtance: accordingly a phyſician was ſent for, who preſcribed for him. At the end of three days one half of the ſcrotum was compleatly mortified; and in about ſeven more it caſt off, with ſo large a portion of the tunica vaginalis, that I had no doubt that none of it was left.

The gout now made an attack on his feet, and the inflammation left all other parts; the ſore put on a good aſpect, and in a ſhort time he got well. But notwithſtanding the very large portion of the vaginal coat which came away in a ſlough, I have twice ſince drawn off a full pint of water from the ſame ſide.

CASE XXII.

A Man about forty, afflicted with a large hydrocele of the tunica vaginalis, and which, from a miſapprehenſion of the true nature of the diſeaſe, he had never conſulted any body about, having been robbed by a ſervant of a conſiderable ſum of money, was obliged to travel very hard, on horſeback, from the neighbourhood of Exeter, to London.

When he ſet out, his ſcrotum was free from all diſeaſe, except its diſtenſion by the water; but when he came to this town, it was covered all over with an inflammation of the eryſipelatous kind; was much increaſed in ſize, and very painful to the touch. He was much fatigued with his journey, and juſt before he went to bed in the evening, had a ſhivering, which was followed by a very reſtleſs night, and a conſiderable degree of fever. In the morning his ſcrotum was ſo much inflamed, that he was alarmed at the appearance, and ſent for aſſiſtance. The perſon who came to him, immediately made an opening, by means of a pointed knife, into the tunica vaginalis, and gave diſcharge to a conſiderable quantity of water; but, by night, the whole ſcrotum was mortified. That evening I ſaw him, but without any hopes of being able to ſerve him. His pulſe, which had been full, hard, and rapid, was now ſmall, and faultring; his head was very unſteady, and his extremities cold; all the tumefaction of the

ſcrotum

ſcrotum was gone, and it ſeemed one large eſchar. On the next morning he died.

Now, though it be very poſſible, that the ſame appearance and event might have enſued, if no puncture had been made; yet I think it is very clear, that it would have been more prudent to have tried firſt what a ſoft cataplaſm, and an antiphlogiſtic method could have done. For, by making the opening haſtily, and without a proper prognoſtic, the operator (whether deſervedly or not) incurred all the blame.

CASE XXIII.

A Poor man was brought from the neighbourhood of Roſemary-lane, to St. Bartholomew's Hoſpital.

His ſcrotum was of prodigious ſize; very hard, exceſſively inflamed, quite up to his groin; it was of a duſky red color; extremely painful to the touch; and in one part ſeemed inclined to ſphacelate; the ſpermatic proceſs alſo was conſiderably thickened. He had a hard, full, rapid pulſe; a hot ſkin, a flushed countenance, great thirſt; and complained of moſt excruciating pain in his back.

The account he gave was, that he had, for ſome years, been troubled with a ſwelling on the right ſide of his ſcrotum, which ſome of the ſurgeons of St. Thomas's Hoſpital had told him was a water-rupture, and would have tapped: that he had alſo applied to ſeveral rupture-doctors, each of whom had ſold him a bandage, and ſome of them had pretended to cure him by medicines and applications: that finding no relief from any of theſe, he had a few days before given an itinerant ſtage-quack three guineas to cure him. That this operator laid him on his back, on a couch, and lifting up the tumor, thruſt an inſtrument into it. That no diſcharge followed but blood. That

it

it bled for near a quarter of an hour, and then ſtopped upon his fainting away. That from the time of this operation (which was two days) he had been in extreme pain; and, that his operator not coming to take any care of him, his friends had brought him to the hoſpital. He was immediately bled, had a glyſter injected, and the ſcrotum was inveloped in a ſoft, warm, pultice, and tied up in a bag truſs. When he had paſſed a ſtool, I ordered him a grain of extract. thebaic. to be taken immediately, and repeated again at the diſtance of ſix or eight hours. Next day he was much the ſame in every reſpect; his pain was exceſſive, particularly in his back, and he had not cloſed his eyes. I bled him again freely, (he had two ſtools in the night) and gave him two grains of opium, and direction to repeat one grain every ſix hours until he got eaſe and ſleep. His ſcrotum was well fomented, and the cataplaſm continued. Two days more were ſpent in this manner, before we obtained any remiſſion of the ſymptoms; when that was done, I pierced the anterior part of the tumor, and drew off more than a pint of bloody ſerum. The teſticle now appeared very much inlarged, and hardened; but, by perſiſting in the antiphlogiſtic method, he at length got well.

I ſuppoſe the reader will have as little doubt as I have, that all this miſchief was produced by wounding the teſticle, or epididymis.

CASE XXIV.

A Young fellow, who was waiter at a tavern in the city, and who had for ſome months paſt laboured under a ſucceſſion of pocky ſymptoms, had at laſt a true venereal ſarcocele, with a ſmall quantity of fluid in the vaginal coat.

As

As he had ſeveral other venereal ſymptoms then upon him, and his way of life ſubjected him to great irregularity, I adviſed him to obtain leave to quit his place, and attend to his cure. This he did not chuſe to comply with; and I heard no more of him till about a month afterwards, when his maſter deſired me to call at his houſe.

I found the lad in bed, with a high fever, and with his ſcrotum ſwelled, and inflamed to a very great degree. He ſaid, that two days before he had met with an acquaintance (a ſurgeon's mate of a man of war) who told him, that his whole complaint was a water-rupture, and that for a bottle of claret he would cure him immediately. That he had thruſt a lancet deep into the lower part of the ſwelling; that nothing followed but blood; that he had ſpent ſome minutes in poking into it with a probe, in hopes of getting the water out, but ineffectually; but that he had been in racking pain ever ſince. Phlebotomy, glyſters, opiates, febrifuge medicines, &c. were all employed, by which means his pain, fever, &c. were at length got the better of; but almoſt the whole teſticle caſt off in one large ſlough.

Means for a Radical Cure.

EVERY other method of treating this kind of hydrocele, except the puncture, was either originally intended to obtain a radical cure; or, having been found to have been often productive of ſuch, has been, by different people, ranked, ſometimes among the palliative, ſometimes among the radical means.

In many of the old writers are found directions for obtaining the cure of this diſeaſe by the uſe of a ſeton, a cannula, a tent, a cauſtic, a ligature, an injection, or an inciſion.

Some

Some of theſe are adopted, or preferred by one, and ſome by another, according to the theory which they entertained of the diſorder; or to the benefits which they had ſeen to have accidentally ariſen from the uſe of the ſaid means.

To reduce theſe under ſome kind of method, (which the manner of their being delivered to us, does in general not very eaſily admit) we may ſay, that the ſeton, the tent, and the cannula, were either originally meant to palliate a diſeaſe, of which the old practitioners had very diſagreeable apprehenſions; or that they were made uſe of upon a ſuppoſition that the fluid contained in the cyſt was in itſelf noxious; or that the general habit of the patient was relieved, and many other diſorders prevented by the ſaid humor falling, or being depoſited in that part; or from an opinion that the cure of it ought not, by any means, to be haſtily, or raſhly attempted: that the cauſtic, cautery, and ligature, were deſigned to prevent the ſuppoſed deſcent of the water from the abdomen into the ſcrotum: and, that the injection was calculated for the conſtriction of a ſuppoſed breach in lymphatic veſſels.

Some of theſe (happily for mankind) are now quite laid aſide; the reaſons for their uſe being found to be falſe and groundleſs: of this kind are the cautery, the ligature, and the injection. The water is now, by every body who has made any enquiry into the matter, known to be formed and collected in the part where it is found; and not to have fallen into it from the belly: and, though an obſtruction in the lymphatic veſſels of the ſpermatic chord, may in ſome degree prevent the regular and due abſorption of the fluid, from the vaginal tunic, yet, no breach, or rupture of ſuch veſſels, can ever produce the diſeaſe in queſtion: the extravaſation, in ſuch caſe, muſt be in another part; and may poſſibly cauſe a hydrocele of the cellular kind, in the

common

common membrane of the ſpermatic veſſels, but which can never be found within the tunica vaginalis.

The reaſons originally given for the uſe of the tent, and the cannula, viz. the noxious quality of the fluid, and the neceſſity of a gradual cure, are now alſo known, and acknowledged to be without foundation; and therefore tho' theſe methods, or methods like theſe, do ſtill continue to be uſed, yet it is with another view, and upon other principles: not with intention to lengthen the time of a cure, by making a gradual drain for the prevention of other diſorders; but merely, to aboliſh the cavity of the tunica vaginalis, by having excited, and maintained ſuch a degree of inflammation and ſuppuration, as ſhall produce an union between that coat, and the albuginea teſtis.

This is indeed the only rational end, which can, by any of theſe means, be purſued: for the diſorder being abſolutely local, and the tunica vaginalis (the ſeat of it) moſt commonly ſomewhat altered from its natural ſtate, by having been diſtended; unleſs the abſorbent veſſels can again be reſtored to a capacity of doing their duty, (a circumſtance which does not very often happen) the arteries will continue to exhale new ſerum into the cavity, and the hydrocele will ſtill remain, or be renewed in a ſhort time after each diſcharge.

To obtain this end, two kinds of means are propoſed; in the uſe of one, it is intended, by means of a ſmall wound, to excite ſuch a degree of inflammation, as ſhall occaſion, or be followed by, a total, and abſolute coheſion of the tunica vaginalis with the tunica albuginea: in the other, a larger and more free inciſion is made; whereby the cavity of the former of theſe coats, is converted into a hollow, or open ſore, or ulcer, to be filled up by a new incarnation; or elſe, a part of the ſaid tunic being cut away,

its power of again holding the extravaſated fluid is equally prevented.

The firſt, or union of the two coats in conſequence of inflammation has ſometimes been found to follow the uſe of ſuch means, as were intended to procure only a temporary relief: it ſometimes follows the ſimple puncture with the trochar, or lancet; the ancient method of letting out the water, by a ſmall inciſion, frequently produced it *; and the ſeton, the tent, and the cannula, tho' uſed for another purpoſe, or at leaſt for other reaſons, were found to be followed by it ſo often, that they ſoon were ranked among the means for obtaining a radical cure †.

They

* This was by making, firſt an inciſion of ſome length, thro' the ſcrotum, and dartos, ſo as to lay the tunica vaginalis bare, and then by making a puncture in the latter. The accounts given by Brunus and Theodoric, are the ſame as that of all the writers before them, and have been copied by many ſince: "Curatio ejus eſt, ut incidatur cutis teſticu-"lorum ſectione ampla ſecundum longitudinem ejus; dein perfora, et aquam extrahe."

† Many of the old writers have left us directions, for paſſing the ſeton, and for introducing the tent, either of lint or ſponge, and the cannula, either of alder, or of ſilver.

Gulielmus e Saliceto, having firſt propoſed the uſe of external applications, ſays, "Si hac via non conſumitur aqua, tunc perfora burſam, cum phlebotomo tuo acuto, "et extrahe aquam, non ſubito totam, ſed partem; et pone in foramine illo tentam li-"neam, vel ſtuppeam, aut ſpongiam; ut poſſes de die in diem aquam extrahere: et "nota, quod hujuſmodi ægritudo multoties recidivat; et ſi ſic, ſemper redeas ad perfo-"rationem antedictam: et via iſta, et modo, perfecte curabitur."

Fabritius ab Aquapendente, ſpeaks of the tent as frequently uſed by him, in the mixed caſe of hydrocele and ſarcocele, or diſeaſed teſticle; tho' by the account he gives of his ſucceſs it is pretty clear that he uſed it in the hydrocele only; or when the teſticle was not really diſeaſed. His words are, "Si carnoſa ſimul et aquoſa ſit hernia, ego talem "adhibeo curam. Seco cutem, et inciſionem facio exiguam, et in loco potius altiori, "quam in fundo; inde, turunda impoſita cum digeſtivo, et pus movente medicamento

"procedo,

They were indeed, (as I have already obſerved) originally deſigned to diſcharge the water gradually; and to continue ſuch a drain from the parts where it had been collected, as might prevent any of the ill conſequences, apprehended, from the removal of the local diſorder: but the inflammation, which ſupervened ſometimes, producing a coheſion of the ſacculus to the ſurface of the teſticle, what was originally calculated for a palliative remedy only, was by many adopted for a radical one.

If the event, and conſequence flowing from theſe means, were as much in our power, as they have been ſaid to be; that is, if we

" procedo, neque unquam totum pus extraho, ſed perpetuo bonam partem intus relinquo, " quod ſenſim carnem corrodat, et ita ſanat." An adheſion of the vaginal coat, with the albuginea, may be the conſequence of ſuch treatment of an hydrocele, and conſequently ſuch patient may obtain a radical cure; but whoever has ſeen any thing of the diſeaſe properly called a ſarcocele, will know, that it will very ſeldom bear ſuch rough treatment.

This method of procuring a firm cure (by the tent) is mentioned by Ruyſch: " Sa- " nari quidem valet id mali pertuſo ſcroto, ope inſtrumenti touchart dicto, vel lanceola " phlebotomica, ut aqua vulnere exeat, ſed cito plerumque recrudeſcit malum. Si autem " curationem aggrederis aperiendo ſcrotum a parte ſuperiori ad latus, tumque vulnus tu- " runda oblonga unguento roſaceo, mercurio precipitato rubro inuncto oppleveris, donec " lenis inflammatio, eique ſuccedens ſuppuratio parva, membranulas ſtillantes putrefece- " rit, tuncque eas tenaculo eduxeris, &c."

Profeſſor Munro, of Edinburgh, has propoſed a method of cure, upon the ſame principle; but much better, and more likely to procure the one thing aimed at, (the lenis inflammatio) as he employs no catheretic medicines. His words are: " Conſide- " ring how readily contiguous inflamed parts grow together; and how many inſtances " there are, of people having a radical cure made of this hydrocele, by inflammations " coming on the part; it would ſeem no unreaſonable practice, to endeavour a concre- " tion of the two coats of the teſticle, when they are brought contiguous, after letting " out the water through the cannula of a trochar, by artfully raiſing a ſufficient degree " of inflammation.

we could with any tolerable preciſion or certainty determine the degree of inflammation to be excited, and the effect of ſuch inflammation on the vaginal coat, there would be no doubt of the utility of them; but this is far from being the caſe; for although it ſometimes is ſufficient for the purpoſe wiſhed for, and riſes no higher than juſt to a degree equal to that purpoſe, yet it alſo frequently happens, that either ſuch degree and extent of it is not excited, or it riſes much higher, and proves much more painful and fatiguing, than was promiſed or intended; or (what I have ſeveral times ſeen) after a great deal of pain, and confinement, a partial coheſion only has been the conſequence, and

"This to be ſure muſt be done cautiouſly, and ſo that the ſurgeon can reaſonably expect to be maſter of the inflammation; and therefore the application of all irritating medicines, the operation of which he could not immediately ſtop, or any ſingle mechanical effort, the effect of which he could not be ſure of, are not to be employed.

"Suppoſe the cannula of the trochar was to be left in; by the extremity of it rubbing againſt the teſticle, an inflammation might be artfully raiſed; the cauſe of which might be taken away as ſoon as the ſurgeon thought fit, &c." MEDICAL ESSAYS.

This method, with ſome ſmall alteration, I have once or twice uſed with ſucceſs. Being afraid of the pain which might be cauſed by the extremity of the cannula rubbing againſt the tunica albuginea, and the irritation in conſequence thereof, I have left it in, but with a piece of bougie (whoſe length exceeded that of the cannula about a quarter or an eighth of an inch) within it. Of all the methods of uſing a tent, I think this is the beſt, as the cannula ſecures its paſſage into the cavity of the vaginal coat; which the collapſing of that tunic, and the looſe texture of the dartos, would otherwiſe render ſomewhat difficult. But although I have once or twice ſucceeded in this manner, I have much oftener been fruſtrated: ſometimes it has proved abſolutely ineffectual; and at others, I have ſeen it raiſe ſuch a diſturbance, as to render it neceſſary to lay the whole cavity open before a cure could be obtained.

Of all the methods of obtaining a radical cure of an hydrocele, by exciting inflammation within the tunica vaginalis, and thereby obtaining an adheſion between it and the albuginea, that by the ſeton is by much the beſt; it is the leaſt painful, the moſt eaſily managed, excites the leaſt troubleſome ſymptoms, and is the moſt frequently ſucceſsful: but, as I ſhall have occaſion to ſpeak of this hereafter, I ſhall defer ſaying any more concerning it in this place.

and the diſeaſe has ſtill remained, notwithſtanding all the patient's and our trouble. Sometimes the pain, inflammation, and ſymptomatic fever, are but little; but on the other hand, they are all three ſometimes ſo great as to become alarming, at leaſt to a patient who has been taught to expect a cure upon much more eaſy terms. The whole ſcrotum ſometimes becomes exceſſively inflamed, and after a good deal of pain, and trouble, large deep ſloughs are produced, and the proceſs becomes as irkſome as any of thoſe, whoſe event, (with regard to a cure) is much more certain.

If the inflammation be but ſlight; the pain, and tumefaction, moderate; the ſymptomatic fever light; the ſuppuration ſmall, and an univerſal coheſion of the two membranes is produced; the event is very fortunate, and a very troubleſome complaint is thereby got rid of, upon very eaſy terms. If the event proves what I have mentioned in the ſecond place; that is, if either the inflammation be confined to the dartos, where it ſometimes produces ſeveral ſuperficial abſceſſes (of no conſequence toward the cure of the diſeaſe;) or if it has been ſo partial, as only to have occaſioned the coheſion between the tunics of ſmall compaſs, the cavity will not by this means be aboliſhed, nor any thing like a radical cure be obtained; conſequently the patient will have undergone all the fatigue, confinement, or pain, (be it more or leſs) for nothing. But if the inflammation riſes high, if the ſcrotum ſwells conſiderably, and large deep ſloughs are formed (as ſometimes happens) the ſymptoms, and the hazard, are then fully equal to what attend thoſe more certain methods. Which of the three will be the event, no man can ſay. Under the ſame external appearances, different people are more or leſs liable to inflammation, and fever; the confinement of matter, in conſequence of too ſmall an opening, will in ſome habits make ſtrange

havock,

havock, in a very ſhort time; and if a large opening, and a plentiful ſuppuration muſt at laſt be ſubmitted to, the method by a large inciſion at firſt, is preferable, as the cure is more certain, and the loſs of time leſs. Different circumſtances in the patient will render one method preferable to, and more likely to ſucceed, than another; but whenever a cure is attempted by any of the before-mentioned means, the uncertainty of the event ſhould be made known, and the patient he appriſed of what may happen, either with regard to trouble or diſappointment.

All the methods hitherto taken notice of, are calculated to produce a perfect, or radical cure, without making a large wound, or bearing the appearance of a chirurgical operation: thoſe of which I am now to ſpeak, are intended for the ſame purpoſe; but by making a large and free opening into the bag containing the fluid, to render the accompliſhment of ſuch purpoſe more certain.

Theſe are called the cure by *cauſtic*, and the cure by *inciſion*. The cure by cauſtic, is calculated to ſpare the terror which a cutting inſtrument always conveys; and, (as the patrons of it ſay) to avoid the painful ſymptoms, and hazard, which frequently attend a large inciſion in theſe parts. The method is this: a piece of the common paſte cauſtic, rather leſs than a finger's breadth, properly ſecured by plaſter, is applied the whole length of the anterior part of the tumor, which will neceſſarily make an eſchar of proportional ſize. When this eſchar either caſts off, or is divided, an opening of nearly the ſame length and breadth is thereby intended to be made into the cavity of the tunica vaginalis teſtis: by which means an opportunity is given to the ſurgeon to apply ſuch dreſſings to the inſide of the ſaid tunic, as ſhall, by the generation of new fleſh, fill up, and aboliſh its cavity. The preference which ſome practitioners have given to this method before that by inci-

ſion,

ſion, has been upon a ſuppoſition that a circumſtance which very ſeldom happens, will moſt frequently occur; I mean the penetration of the cauſtic thro' the vaginal tunic, containing the fluid.

By this they hope to avoid the ſymptoms which are ſuppoſed to be generally excited by the diviſion of the ſaid bag by a cutting inſtrument. I will not ſay, that the cauſtic never does this; but I muſt ſay, that I have very ſeldom ſeen it do ſo. If the tumor be very large and full; the containing parts very much on the ſtreſs; and the ſkin and dartos very thin; the cauſtic may now and then penetrate thro', to the vaginal coat: but this, whatever may be thought or pretended, very ſeldom happens; and when it does not, the tunica vaginalis muſt be divided in the ſame ſtate, and manner, as if no cauſtic had been applied. All the difference between the two methods (cauſtic and inciſion) will then amount to this; that in the former, the ſkin being mortified, the patient is freed from a part of his apprehenſion at its being cut; and the ſurgeon, fancying that his eſcharotic has gone thro' the vaginal coat, will divide it, as a part of the eſchar: but a more careful examination of what he is about, at the time of ſuch operation, would generally convince the latter, that he divides the bag unaltered by the cauſtic; and the ſymptoms which often attend this proceſs, confirm it. It has indeed been propoſed to divide the eſchar made in the ſkin, down to the ſurface of the tunica vaginalis, and then by the application of a freſh cauſtic to make an eſchar in that coat alſo. But whoever makes, or ſubmits to this experiment, will find that of two evils he chuſes the greater; and, to avoid the pain of inciſion, incurs a much greater degree of it by the repetition of the eſcharotic. The pain attending the firſt application of the cauſtic, is indeed to ſome perſons but little; but in many it is fully equal to that of the knife, and muſt always be of much longer duration: if it does not penetrate the tunica vaginalis, that bag muſt be

divided

divided by a cutting inſtrument (as I have already ſaid) in the ſame ſtate as if no cauſtic had been applied; which inciſion is, and muſt be accompanied, with the ſame ſymptoms, (in the ſame perſon) as in the operation by the knife only. Nor can we at all times confine the cauſtic, ſo as that it ſhall not cauſe a much larger ſore than is intended, or can be neceſſary.

Upon the whole, the cure by cauſtic, as it ſpares the terror and apprehenſion of a bloody operation by the knife, and as it requires no dexterity in the operator, may, on thoſe two accounts become preferable both to many patients and ſurgeons; yet whoever promiſes to perform, or expects to receive a radical cure by cauſtic, upon much eaſier terms than by inciſion, will moſt frequently be diſappointed; that is, they will frequently find the fever, and inflammatory ſymptoms full as high, and the ſore full as painful in the one as in the other; and conſequently all their care and attention to obviate miſchief, full as neceſſary. Neither is the acceſſary confinement, in general, at all leſs in the one than in the other.

One of the methods made uſe of by the ancients, to let out the fluid from an hydrocele of the vaginal coat was, (as I have already obſerved) by making a pretty large diviſion of the ſcrotum and dartos, and having by that means laid the tunic bare, to make an opening into that alſo, and thereby diſcharge the contents. This method ſometimes produced a perfect cure in the firſt inſtance, but much more frequently produced only a temporary relief. If the opening made in the tunica vaginalis was ſmall, and united again immediately, the bag filled again with water, and the diſeaſe recurred; but if the orifice, inſtead of immediately uniting, became inflamed, or ſloughy, ſuch an adheſion of that coat to the albuginea teſtis ſometimes followed, as cauſed an abolition of the cavity of the former, and conſequently a radical cure. Tho' this happened now and then,

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and the cure was really accidental, yet it furniſhed a hint for attempting to obtain the ſame end, with a much greater degree of certainty. This was by dividing or laying open the whole cavity or bag containing the water: and that, ſometimes, by a mere ſimple diviſion of it; ſometimes, by the total removal of ſome part of it.

Paulus Ægineta, Albucaſis, Severinus, and many others of the beſt of the ancient writers, have given a particular account of this operation; and it has at all times been practiſed by ſome, tho' it has generally been decried, and dreaded. In what manner, and with what caution it may have been executed, by thoſe who have given ſo bad an account of it, I know not; but by what I have ſeen of it, I am very confident that the ills attending it have been much exaggerated; that, under proper cautions and reſtrictions, it will be found to be practicable with perfect ſafety; and that it ought by no means to be laid aſide. Some writers of very good character have appeared very averſe to it, and have aſcribed to it ſuch ſymptoms in general, as are indeed very alarming; but which do not occur, unleſs the operation be performed improperly, or on ſubjects unfit for it. I have practiſed it very often, and do not remember to have ſeen any ill effects from it, more than two or three times. I would be very cautious how I advanced any thing in a matter of this kind, which experience would not vindicate, or by which others might be miſled; but I have ſo often made the experiment, and with much ſucceſs, that I cannot heſitate to aſſert, that under the neceſſary reſtraints, regarding age, habit, ſtate of the diſeaſe, &c. it is a very uſeful operation, and may be practiſed with great propriety. I may, perhaps, be thought to ſpeak better of it than it deſerves: I am not conſcious that I do; but I am much inclined to believe, that they, who appear ſo averſe to it, have either practiſed it on improper ſubjects, and in improper circumſtances, or, having imbibed a preju-

dice againſt it, have been unneceſſarily alarmed at what would not in other caſes have alarmed them; or, that not being ſufficiently apprehenſive and attentive, they have ſuffered their patients to get into circumſtances of hazard, which are not juſtly chargeable on the operation merely, and would not happen under more careful management.

Advanced age, an apparently bad or cachectic habit, a diſpoſition to anaſarcous or leucophlegmatic ſwellings, an intemperate life, the cuſtom of drinking ſpirituous liquors, and any ſuch general diſorder in the conſtitution as is likely to increaſe the ſymptomatic fever, which ſuch an operation muſt neceſſarily produce, are juſt objections to it: any diſeaſe of the glandular part of the teſticle, its coats or veſſels, an old irreducible hernia, a diſeaſed ſtate of the urethra, proſtate gland, or neck of the bladder, are (while they continue) good reaſons for not performing it: but, conſideratis conſiderandis, in young and healthy people, and in a recent ſtate of the diſeaſe, this method of obtaining a radical cure is a very good, and a very practicable one.

The method of performing the operation is, as follows: having appointed an aſſiſtant to graſp the upper part of the tumor, in order to render it tenſe below, a puncture ſhould be made in the lower and anterior part, through the ſkin and vaginal coat. If the operator intends to finiſh the inciſion with a knife, he ſhould make this puncture large enough to admit the end of his fore-finger; which he ſhould introduce immediately, before the water is all diſcharged, and the vaginal coat collapſed; and upon that finger, ſo introduced, he ſhould continue his diviſion of the whole length of the bag, and of the ſcrotum which covers it. If he intends to uſe the probe-ſciſſars (a more tedious and a more painful method) he may make his firſt puncture with a lancet, and then introduce his ſciſſars. Upon the firſt diviſion, the water ruſhes out, and the tumor ſubſides; if the puncture be made ſmall, a part of the fluid will inſinuate itſelf into the cells of the

dartos,

dartos, and by the immediate collapſion of the vaginal coat, the operator will find ſome difficulty, in introducing either his finger or his inſtrument into the orifice made in it; if he does not do this, he will divide only the ſkin and dartos, and the patient muſt undergo a ſecond inciſion, for the diviſion of the cyſt; all which inconvenience may be avoided, by making the firſt opening large enough for the introduction of the finger; and when that is in, all the reſt is, upon that, very eaſily executed *.

When the vaginal tunic is divided, and the fluid thereby diſcharged, the teſticle, covered only by its tunica albuginea, comes into view; and if the inciſion was either begun, or continued very low, it generally thruſts itſelf out from the wound. This ſhould be gently replaced; and if the vaginal coat is not much thickened by having been long diſtended, nothing more need be done, than to lay a ſmall quantity of fine lint † into its cavity; and then covering the wound with a large pledgit and a ſoft bolſter, tie the ſcrotum up in a ſuſpenſory bag. This operation, if properly performed, may be executed in a very few ſeconds: it requires no other violence, than the mere diviſion of the parts; and if this diviſion be made with a knife, rather than ſciſſars, it will require much leſs time, and cauſe much leſs pain.

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* Some practitioners, terrified at the accounts which they have received of the operation, and yet being deſirous of producing a radical cure in this manner, have thought that they might leſſen the hazard, by reducing the ſize of the inciſion; and therefore make a very ſmall one: but whoever depends upon this, will find himſelf miſtaken. An inciſion made one fourth of the length of the ſac will be attended with all the trouble and hazard, which follow one of two-thirds; with this additional inconvenience, that the former will very often prove ineffectual at laſt.

† By no means to fill, or diſtend it, or to make any preſſure on the teſticle; whoſe tunica albuginea is very irritable, as well as acutely ſenſible.

The membranous ſtructure of the parts; on which this wound is inflicted; their continuation from the peritoneum; and the great irritability of ſome of thoſe which are neceſſarily laid bare, and put under a neceſſity of receiving dreſſings, muſt occaſion pain, and ſymptomatic fever: this it is the buſineſs of art to moderate and relieve; phlebotomy, lenient aperitives, febrifuges, and opiates, will therefore become neceſſary. But in this caſe, as in many others, it will generally be found much more eaſy to prevent bad ſymptoms, than to remove them, when they have been permitted to attain a conſiderable height. The operation is, or ought to be, confined to the young and the healthy, in whom inflammatory ſymptoms are moſt likely to occur; but (I believe I may venture to ſay) to whom we have more efficacious remedies to apply in ſuch diſorders, than can be uſed to people of a different habit, and in different circumſtances.

The general induration of all the parts about, the thick tumid lips of the inciſion, and the general inflammatory enlargement of the ſcrotum, have for the firſt four or five days a diſagreeable appearance; and may, if neglected or miſ-treated, prove very troubleſome, or even hazardous; and the kind of diſcharge, which during that time is made (a thin diſcoloured gleet) ſeems very unequal to the reduction of ſo much tumefaction; but when the febrile ſymptoms are appeaſed, and a kindly ſuppuration begun, let the ſurgeon have patience, and not by an over-officiouſneſs, or by improper dreſſings, interrupt nature in what ſhe is about: let him, by warm fomentations, keep the parts clean, and perſpirable; let him dreſs the wound with a ſmall quantity of ſoft, eaſy, digeſtive applications; and covering the whole ſcrotum * with a ſoft, warm pultice, ſuſpend

* The impalpable farina ſeminis lini, put into boiling water, with a proper quantity of ung. ſambuc. freſh butter, or lard, is the eaſieſt made, and is the neateſt, ſofteſt, ſmootheſt,

ſpend it in a proper bag; and he will, in general, ſoon ſee a favourable change in all the appearances: he will ſee the inflammation diſappear, the tumor reſolve, and all the tumefaction in due time ſubſide. But if he neglects theſe general cautions, and, under a notion of aſſiſting digeſtion, goes to work with precipitate, and other irritating dreſſings, the face of things will not be ſo agreeable; the tumor will not ſubſide, and he will continue, or rather create a painful, undigeſted ſore, with all its conſequences; but, for which, he only is accountable.*

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ſmootheſt, and moſt relaxing application of the kind; has nothing offenſive in its flavour; nor is it, like moſt other cataplaſms, likely to excite a herpes.

* The great hardneſs, which almoſt always attends inflammations of theſe parts, has (I ſuppoſe) been the reaſon, why ſo many writers have adviſed, and ſo many practitioners ſtill uſe, ſuch applications, as (though really eſcharotics) are called diſſolvers of induration, and removers of obſtruction.

I would be very cautious, how I made objection to what ſo many have recommended; and, in a matter of mere ſpeculation, would rather doubt my own judgment, than that of ſome others: but this is a fact, of which I have too often been convinced, to be miſtaken; and, therefore, I cannot help ſaying, that it appears to me, that all applications of this kind, even the mildeſt of them, (the red precipitate) are generally very improperly uſed; that they give unneceſſary pain; and retard, what they are uſed with deſign to expedite.

Inflammatory hardneſs and tumefaction is not peculiar to the ſcrotum, upon its being wounded: it is common to all parts of ſimilar ſtructure; that is, the adipoſe and cellular membrane all over the body.

When ſuch parts are irritated by a large wound, they cannot reſiſt a ſudden influx; the conſequence of which muſt, for a time, be obſtruction, induration, and ſwelling: but, one moment's reflection on the natural ſtructure and ſtate of theſe parts, before ſuch wound was inflicted, or ſuch irritation excited, will prove that eaſe, relaxation, and free ſuppuration, muſt be the intentions proper to be purſued; and that every application, which either ſtimulates, gives pain, or corrodes, muſt pervert, and counteract ſuch intentions.

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In about ſix weeks, the ſcrotum is generally reduced to nearly its natural ſize; and when the wound is quite healed, the cicatrix is a mere

The breaſts of women, the axillæ of both ſexes, the parts ſurrounding the inteſtinum rectum, the cellular membrane in the perinæum, under the integuments of the penis, and in ſeveral other parts of the body, are liable to this kind of alteration, when injured; but this induration is very unlike to a glandular one, and requires very different treatment. In the latter, a deſtruction of parts is ſometimes neceſſary, and eſcharotic medicines may therefore be required: but in the former, mere relaxation is all that is wanted: whatever gives eaſe, and appeaſes the inflammatory tenſion, will beſt produce matter, and anſwer the purpoſe which ought to be aimed at.

The moſt convincing proof of the truth of this doctrine, may be drawn from that caſe, which, of all thoſe which affect this kind of membrane, is generally the moſt troubleſome. I mean the fiſtulæ in perinæo. In theſe, the induration and enlargements of the parts is ſometimes ſo great, as to be very alarming; hard, callous excreſcences; deep and long ſinuſes, with ſmall orifices; conſtant pain and irritation, from the lodgment of matter and urine; a ſymptomatic fever of the hectic kind; and a difficulty either of retaining the urine within, or expelling it from the bladder, make a part of the moſt frequent characteriſtics of this diſeaſe; and yet, even theſe caſes, terrible as they are, do frequently admit relief, and are ſometimes even cured, without any deſtruction of parts, or the uſe of any one eſcharotic application; a free diviſion of all the hollow and hard parts; the application of ſoft, eaſy digeſtives, and of a warm, relaxing pultice; a total abſtinence from all ſuch external remedies, as corrode or irritate; and all ſuch internal ones, as under the title of deobſtruents, increaſe the velocity of the circulation, and waſte the patient's ſtrength, by watching, purging and ſweating; and an eaſy and gradual diſtenſion of the urethra, by a ſimple *unmedicated* bougie; will, in ſome inſtances, (indeed in all, where any good can be done at all) remove moſt of theſe diſagreeable circumſtances and appearances: in which caſes, a kindly ſuppuration will be afforded by all the divided parts; a florid, well-conditioned incarnation will be the conſequence; the cicatrix will be ſmall, ſoft and moveable, and very unlike to what muſt follow from the uſe of catharetic applications.

This is really a matter of much greater general importance, than it is ſuppoſed to be: the ſymptomatic fevers, which are either produced or maintained by the injudicious application of painful dreſſings, are much more frequent than they are thought to be: not to mention the loſs of time which they muſt always cauſe, and the very diſagreeable deformities they often occaſion.

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mere line, correſpondent to the original inciſion; which is a circumſtance of more conſequence to the patient, than is imagined; eſpecially, if he be obliged to get his bread by labour.

If the tunica vaginalis, containing the water, by long or frequent diſtenſion, or from any other cauſe, is become thick and hard, and cannot therefore contract itſelf, or be contracted, upon the evacuation

The ſurgery of moſt of our forefathers was coarſe and rough; and many of the practitioners affected a kind of brutal, unfeeling ruſticity: the old maxim, "Dolor medicina "doloris," was ſo generally received, that the ſurgeon almoſt forgot his patient's ſenſation; and the common people thought they were neglected, if they were not tortured. Lord Bacon's moſt excellent advice, "inveniendum quid natura ferat aut faciat," was but half remembered; they tried very ſufficiently what nature would bear, but very ſeldom had patience to know what ſhe could do. Under a miſtaken notion of going to the bottom of wounds and abſceſſes, and of diſſolving indurations, they crammed and diſtended the cavities, and corroded and irritated its ſides, till a train of bad ſymptoms were often excited, which the original diſeaſe had no ſhare in the production of.

That this is no exaggeration, let their works teſtify; and that ſomething of this kind is ſtill too much in uſe, is too well known. All dreſſings are in fact extraneous bodies; and when they either conſiſt of ſuch materials as give pain, and excite irritation, or are crammed in with injudicious violence, they are foreign bodies, with other miſchievous qualities annexed. Where deſtruction of parts is neceſſary, the ſooner it is executed the better, and the neceſſary pain muſt be complied with; but in the application of dreſſings to the inſide of abſceſſes, to hollows made by the removal of diſeaſed parts, to large ſores attended with hardneſs and inflammation of the common membrane: in ſhort, wherever mere ſuppuration is required, they cannot be too light, ſoft, and eaſy; all that we have to do, is not to obſtruct nature in the execution of thoſe offices, to which ſhe is generally fully equal; in which we can lend her no aſſiſtance beyond removing impediments out of her way. In the particular caſe of the divided tunica vaginalis; that degree of thickneſs and hardneſs, which it ſometimes acquires by long diſtenſion, is urged as a reaſon for the uſe of cauſtic applications: but this is a method of reaſoning to which I cannot agree, having often experienced the contrary. That membrane, like all others of the exanguious kind, is difficult, and ſlow of digeſtion, eſpecially if altered by diſeaſe; but that it will in time become ſloughy, digeſt, and yield a kindly ſuppuration and incarnation, by the mere uſe of ſimple, eaſy, applications, and without that of any eſcharotic (not even the red precipitate) I have often and often experienced.

evacuation of the fluid; it will contribute conſiderably to the thickneſs of the lips of the wound, as well as to their hardneſs, pain, and difficulty of digeſtion. In this caſe, the beſt way is to remove a part of it, on each ſide, at the time of the operation. The cellular ſtructure of the dartos eaſily admits this to be done; and when theſe ſides are thus taken away, the lips of the wound conſiſt only of the common integuments. A knife will do this with much more eaſe and expedition, than any other inſtrument whatever. The method propoſed by the late Mr. Douglaſs, of doing it by repeated ſnips of the probe-ſciſſars, is operoſe, unhandy, and unneceſſarily painful and tedious: nor is the cutting away an oval piece of the ſcrotum, as adviſed by that gentleman and ſome others, at all neceſſary: on the contrary, the more looſe that part of the ſcrotum is, which is to cover the teſticle (now deprived of its vaginal coat) the better; as it will be more capable of corrugation.

With theſe cautions, and under the proper reſtrictions (already mentioned) this method of obtaining a radical cure is very practicable. That it is ſometimes accompanied by troubleſome ſymptoms, is beyond all doubt; and ſo is the method by cauſtic. I cannot ſay, that I have never ſeen it prove fatal; nor can that be ſaid of any operation of conſequence. Much depends on the choice of a proper ſubject, and the obſervance of the neceſſary means and cautions; without which, both this, and the uſe of the cauſtic, will always be troubleſome, and ſometimes hazardous.

Before I finiſh the account of this method of cure, I would take the liberty of mentioning one circumſtance more, which appears to me to be of conſequence. When the quantity of fluid is large, and the ſcrotum and tunic much on the ſtretch, I think it is better to diſcharge the water by mere puncture; and not to perform the operation for the radical cure, until a freſh accumulation has again moderately diſtended it.

it. The inflammation neceſſarily conſequent upon the diviſion of theſe parts, juſt after they have been ſo much on the ſtretch, and ſo ſuddenly let looſe, may be, (and I think I might ſay, that I have ſeen it prove) productive of worſe ſymptoms, and a higher degree of fever and tumefaction, than uſually occurs, when the ſame parts are divided in a leſs diſtended ſtate.

This method of obtaining a radical cure by inciſion, of which I have given the faireſt and moſt impartial account in my power, muſt always be conſidered as a matter of choice, and never can be an operation of neceſſity: that is, they who are afflicted with the diſeaſe, for whoſe cure it is calculated, will always have it in their power to be temporarily relieved by the palliative means, or may make trial of any of the above-mentioned leſs certain attempts, without incurring any, or a very ſmall degree of hazard. Now as this method can never be ſaid to be totally and abſolutely void of ſome danger; as it bears the appearance of an operation of ſome ſeverity; and as it muſt always be voluntarily, and deliberately ſubmitted to, without any real neceſſity from the circumſtances of the diſeaſe; in other words, as it muſt be choſen by the patient, merely to avoid the trouble and inconveniences attending the diſorder; and not neceſſarily applied to, as ſome other operations are, to ſave or preſerve life, it does not often happen that we are called upon to practiſe it.

The number of people labouring under this diſeaſe, and who come within the above-mentioned neceſſary reſtraints, from age, habit, manner of living, date of the complaint, thickneſs of ſac, &c. &c. &c. is great. And that of thoſe, who either have an inſuperable dread of an operation, or are ſo circumſtanced or connected in life, as to make any ſuch degree of danger highly improper to be voluntarily incurred, is ſtill greater: ſo that by far the majority of thoſe who are afflicted with the diſorder, are obliged (however irkſome it may be, or how-

ever diſagreeable it may prove to them) to carry it through their life, ſeeking relief now and then from the palliative remedy of tapping. This renders it to the active and to the laborious, a complaint of more conſequence than is generally imagined.

From theſe conſiderations, I have often been induced to think ſeriouſly on the ſubject, and to make many experiments; the reſult of which, when likely to prove at all uſeful to mankind, or creditable to the art of ſurgery, I ſhall always think myſelf obliged to communicate.

Every practicable method propoſed by the antients, I have tried; and have found them in general painful, fatiguing, hazardous, or inefficacious.

The tent, whether of lint, or ſponge, is ſubject to great objections, both in its firſt application, and its future neceſſary continuance. The cellular ſtructure of the dartos, and the looſe connection between the ſkin and tunica vaginalis, renders its introduction (unleſs a cannula be uſed) ſometimes difficult. When in, great care muſt be taken to keep it there for ſome time, or the effect intended (an inflammation of the vaginal coat and albuginea) cannot be obtained; and the means made uſe of for its diſtenſion, as well as the nature of the tent itſelf (eſpecially if made of ſponge) prove frequently very fatiguing, not to ſay miſchievous, by the irritation, and the neceſſary confinement of the matter. And, after all, I have ſeveral times ſeen it produce only a partial coheſion; and that ſo ſmall an one, as to prove no cure at all, nor at all prevent the future accumulation of water, or the neceſſity of frequent tapping.

The cannula, when uſed for the ſame purpoſe inſtead of a tent, is indeed eaſily introduced; and when in, does not confine the matter: but then its hardneſs, inflexibility, and thin edge, and the abſolute impoſſibility of directing or managing it, in the frequent and neceſſary

motions of the patient, though confined to his bed, renders it a very unpleaſant and troubleſome gueſt within the tunica vaginalis; and if, to avoid this inconvenience, a piece of bougie be kept within it, this, while it is there, confines what ought to be diſcharged.

The point to be aimed at is, to excite ſuch a degree of inflammation, both in the tunica vaginalis and tunica albuginea, as ſhall occaſion a general and perfect coheſion between them: and this, if poſſible, without the production of ſlough or abſceſs; without the hazard of gangrene, and without that degree of ſymptomatic fever which now and then attends both the cauſtic and the inciſion; and which, when it does happen, is ſo alarming both to patient and ſurgeon.

Theſe ends I have frequently obtained, by the uſe of a ſeton. It is a method of cure mentioned by Aquapendens, as uſed by Guido, and others before him; (though their proceſs was ſomewhat different from mine.) I have ſeveral times tried it on ſubjects of very different ages, ſome of them more than fifty years old. It requires confinement to bed only for a few days; after which, the patient may lay on a couch to the end of the attendance; which is generally finiſhed in about three weeks, or a month at the fartheſt: and, during all that time, no other proceſs or regimen is neceſſary, than what an inflammation of the ſame part from any other cauſe (for example, a hernia humoralis) would require. But for a more particular account of this I muſt refer the reader to the tract on this ſubject, which he will find at the end of the preſent.

SECT. IX.

The Hæmatocele, or Tumor from Blood.

THIS is a ſwelling of the ſcrotum, or of the ſpermatic proceſs, proceeding from, or cauſed by blood; and, though ſpoken of by writers as one ſimple diſeaſe, is liable to ſo conſiderable variety, both with regard to nature, and ſituation, as to admit, or even require, being divided into ſeveral kinds.

Such diſtinction of the different kinds of hæmatocele, though not uſually made, is abſolutely neceſſary toward rightly underſtanding the diſeaſe; the general idea, or conception of which, appears to me to be ſomewhat erroneous, and to have produced a prognoſtic which is ill-founded, and haſty. According to my conception, and experience in this matter, the diſeaſe, properly called hæmatocele, is of four kinds; two of which have their ſeat within the tunica vaginalis teſtis; one within the albuginea; and the fourth, in the tunica communis, or common cellular membrane, inveſting the ſpermatic veſſels.

In paſſing an inſtrument, in order to let out the water from an hydrocele of the vaginal coat, a veſſel is ſometimes wounded: which is of ſuch ſize, as to tinge the fluid pretty deeply at the time of its running out: the orifice becoming cloſe, when the water is all diſcharged, and a plaſter being applied, the blood ceaſes to flow from thence, but inſinuates itſelf partly into the cavity of the vaginal coat, and partly into the cells of the dartos; making, ſometimes, in the ſpace of a few hours, a tumor nearly equal in ſize to the original hydrocele. This is one ſpecies.

It ſometimes happens, in tapping an hydrocele, that although the fluid diſcharged by that operation be perfectly clear and limpid, yet, in a very ſhort ſpace of time, (ſometimes in a few hours) the ſcrotum becomes as large as it was before, and palpably as full of a fluid. If a new puncture be now made, the diſcharge, inſtead of being limpid (as before) is now, either pure blood, or very bloody. This is another ſpecies: but, like the preceding, confined to the tunica vaginalis.

The whole vaſcular compages of the teſticle is ſometimes very much inlarged, and at the ſame time rendered ſo lax and looſe, that the tumor produced thereby has, to the fingers of an examiner, very much the appearance of a ſwelling compoſed of a mere fluid, ſuppoſed to be ſomewhat thick or viſcid. This is in ſome meaſure a deception; but not totally ſo: the greater part of the tumefaction is cauſed by the looſened texture of the teſtis; but there is very frequently a quantity of extravaſated blood alſo.

If this be ſuppoſed to be an hydrocele, and pierced, the diſcharge will be mere blood. This is a third kind of hæmatocele; and very different, in all its circumſtances, from the two preceding: the fluid is ſhed from the veſſels of the glandular part of the teſticle, and contained within the tunica albuginea.

The fourth conſiſts in a rupture of, and an effuſion of blood from, a branch of the ſpermatic vein, in its paſſage from the groin to the teſticle. In which caſe, the extravaſation is made into the tunica communis, or cellular membrane inveſting the ſpermatic veſſels.

Each of theſe four, I have ſeen ſo diſtinctly, and perfectly, that I have not the ſmalleſt doubt concerning their exiſtence, and of their difference from each other.

The tunica vaginalis teſtis, in a natural and healthy ſtate, is a membrane, which, although firm, is of no great thickneſs; it is white,

white, or rather of a reddiſh white colour; and its blood-veſſels are (in a healthy ſtate) no more apparent to the eye, than are thoſe of the tunica albuginea: but when it has been long or much diſtended, it thereby becomes thick, and tough; and the veſſels (eſpecially thoſe of its inner ſurface) are ſometimes ſo large, as to be very viſible, and even varicous. If one of theſe lies in the way of the inſtrument, wherewith the palliative cure is performed, it is ſometimes wounded: in which caſe, as I have already obſerved, the firſt part of the ſerum which is diſcharged, is pretty deeply tinged with blood.

Upon the collapſion of the membranes, and of the empty bag, this kind of hæmorrhage generally ceaſes, and nothing more comes of it. But it ſometimes happens, either from the toughneſs of the tunic, or from the varicous ſtate of the veſſel, that the wound (eſpecially if made by a lancet) does not immediately unite; but continues to diſcharge blood into the cavity of the ſaid tunic, thereby producing a new tumor, and a freſh neceſſity of operation.

This is what I have taken the liberty to call the firſt ſpecies of hæmatocele, and plainly and evidently conſiſts in a wound of a veſſel of the vaginal tunic.

Upon the ſudden diſcharge of the fluid, from the bag of an overſtretched hydrocele, and thereby removing all counter-preſſure againſt the ſides of the veſſels, ſome of which are become varicous, one of them will, ſometimes, without having been wounded, burſt. If the quantity of blood ſhed from the veſſel ſo burſt be ſmall, it is ſoon abſorbed again, and, creating no trouble, the thing is * not known.

But

* From this cauſe it very often happens, that the laſt running (if I may uſe the phraſe) of the water from an hydrocele, is bloody (all the former part having been perfectly clear;) and from hence it is, that a bloody diſcharge may almoſt always be produced upon the ſame occaſion, by preſſing and handling the ſcrotum. They, who would ſee a very

But if the quantity be conſiderable, it, like the preceding, occaſions a new tumor, and calls for a repetition of the operation. This I call the ſecond ſpecies: which, like the firſt, belongs entirely to the vaginal coat, and has no concern either with the teſticle, or with the ſpermatic veſſels. In both, the bag which was full of water, becomes in a ſhort ſpace of time diſtended with blood: which blood, if not carried off by abſorption, muſt be diſcharged by opening the containing cyſt; but in neither of theſe can caſtration (though ſaid to be the only remedy) be ever neceſſary: the mere diviſion of the ſacculus, * and the application of dry lint, to its inſide, will, in general, if not always, reſtrain the hæmorrhage; and anſwer every purpoſe, for which ſo ſevere a remedy has been preſcribed. The other two are indeed of more conſequence; they intereſt either the teſticle itſelf, or the veſſels by which it is ſupplied with blood, and rendered capable of executing

very ingenious account of this kind of hæmatocele, and a very probable application of the ſame principle, for the ſolution of ſome other appearances in diſeaſes, may find it in the Edinburgh eſſays from profeſſor Monro, the father.

* It may indeed happen, that the blood of the patient may be in ſuch ſtate, as to be incapable of coagulation: in which caſe, the hæmorrhage will continue from the inſide of the ſac, although it be laid open; and alſo from all the divided parts. This circumſtance, though a very hazardous one, cannot be foreſeen; nor do I know, in this ſtate of the juices, what benefit can ariſe from the removal of the teſticle: for the hæmorrhage will certainly be continued, from all parts of the wound neceſſary in ſuch operation, upon the ſame principle, and for the ſame reaſon that it could not be reſtrained from the inſide of the ſac. Such an indiſpoſition of blood is often, in cachectic habits, the cauſe of very troubleſome and fatal hæmorrhages, at ſome diſtance of time from amputation, as well as immediately. If this want of an agglutinant quality in the blood is not corrected, or is not capable of correction, it generally goes hard with the patient, let the operation be what, or where it may: for it is not merely the ſuppreſſion of the bleeding that is required; the ſame ill quality of blood will prevent ſuppuration, produce bloody, ſanious gleeting, gangrene and mortification. This is an evil; of which every practitioner muſt have ſeen ſo many inſtances, that it is needleſs to produce particular ones.

executing its office; and are ſometimes not curable. but by removal of the part.

One of theſe is ſeated within the tunica albuginea of the teſticle; the other in the tunica communis of its veſſels: they are neither of them very frequent; but when they do happen, they call for all our attention.

If blood be extravaſated within the tunica albuginea, or proper coat of the teſticle, in conſequence of a great relaxation, and (as it were) diſſolution of part of the vaſcular compages of that gland; and the quantity be conſiderable, it will afford or produce a fluctuation, to the hand of an examiner, very like to that of an hydrocele of the tunica vaginalis; allowing ſomething for the different denſity of the different fluids, and the greater depth of the former from the ſurface.

If this be miſtaken for a ſimple hydrocele, and an opening be made, the diſcharge will be blood; not fluid, or very thin; not like to blood circulating through its proper veſſels, but dark, and duſky in colour; and nearly of the conſiſtence of thin chocolate (like to what is moſt frequently found in the imperforate vagina.) The quantity diſcharged will be much ſmaller than was expected from the ſize of the tumor; which ſize will not be conſiderably diminiſhed. When this ſmall quantity of blood has been ſo drawn off, the teſticle will, upon examination, be found to be much larger than it ought to be; as well as much more looſe, and flabby; inſtead of that roundneſs and reſiſtance ariſing from an healthy ſtate of the gland, within its firm ſtrong coat; it is ſoft, and capable of being compreſſed almoſt flat, and that generally without any of that pain and uneaſineſs, which always attend the compreſſion of a ſound teſticle. If the bleeding ceaſes upon the withdrawing the cannula (ſuppoſing a trochar to have been uſed) and the puncture

cloſes,

cloſes, a freſh accumulation of the ſame kind of fluid is ſoon made, and the ſame degree of tumefaction is produced, as before the operation: if the orifice does not cloſe, the hæmorrhage continues, and very ſoon becomes alarming.

In the two preceding ſpecies, the blood comes from the tunica vaginalis, the teſtis itſelf being ſafe, and unconcerned; and the remedy is found, by opening the cavity of the ſaid tunic: but in this, the hæmorrhage comes from the ſubſtance of the teſticle; from the convolutions of the ſpermatic artery, within the tunica albuginea: the diviſion of the vaginal coat can here do no good; and an inciſion made into the albuginea can only increaſe the miſchief: the teſticle is ſpoiled, or rendered uſeleſs, by that kind of alteration made in it, previous to the extravaſation; and caſtration is the only cure, which a patient in ſuch circumſtances can depend upon.

The laſt ſpecies of this diſeaſe ariſes from a burſting of a branch of the ſpermatic vein, between the groin and ſcrotum, in what is generally known by the name of the ſpermatic proceſs. This, which is generally produced by great, or ſudden exertions of ſtrength, feats of agility, &c. may happen to perſons in the beſt health, whoſe blood and juices are in the beſt order, and whoſe genital parts are free from blemiſh or diſeaſe.

The effuſion, or extravaſation, is made into the cellular membrane, which inveſts and envelopes the ſpermatic veſſels, and has ſomething the appearance of a true hernia. When the caſe is clear, and the extravaſated blood does not give way to diſcutient applications, the only remedy is to lay the tumor fairly open, thro' its whole length. If the veſſel or breach be ſmall, the hæmorrhage may be reſtrained by mere compreſſion with dry lint, or by the uſe of ſtiptics; but if it be large, and theſe means do not ſucceed, the ligature muſt be made uſe of. If the bleeding branch can be tied ſingly, the teſticle

may be preſerved; if it cannot, and the whole ſpermatic proceſs muſt be included, it is unneceſſary to add, that the teſticle muſt be removed.

CASE XXV.

A Healthy man, about thirty years old, deſired me to let out the water from an hydrocele; which operation, he ſaid, had, for ſome time paſt, been performed upon him, twice a year, by the late Mr. Bell of Red-Lion-Square; and he deſired alſo, that I would do it with a lancet. I let out near a pint, the firſt part of which was deeply tinged with blood; but as it ran, it became clearer and clearer, and at laſt was perfectly limpid; and when I put on the plaſter, he did not bleed a drop. The next morning, he came to me again; told me that he had bled a good deal in the night; and ſhewed me his linnen, which was very bloody. As there was no diſcharge at this time, I only renewed his plaſter, put him a bag-truſs on, and deſired that he would go home, and keep quiet. He remained free from hæmorrhage for ſome hours; and therefore neglecting my laſt caution, he walked about a good deal, and heated himſelf, and the next day ſent for me to look at his ſcrotum; which was large, and full: making no doubt, from all the circumſtances, that the tumefaction was from blood, I told him my opinion; and, at the ſame time, adviſed, if it did not diſſipate, by proper attempts for that purpoſe, to ſubmit to have the vaginal coat laid open, and thereby obtain a radical cure.

Some time was ſpent, in attempting diſcuſſion; during which, the tumor increaſed, and he, now and then, bled pretty freely from the orifice; which became ſpongy, and would not heal.

Finding

Finding all endeavours ineffectual, he ſubmitted: the tunica vaginalis was laid open; a conſiderable quantity of blood was diſcharged (ſome in a fluid ſtate, but principally grumous;) he had no diſagreeable ſymptoms; and, in about ſix weeks, was perfectly well.

CASE XXVI.

AN elderly man, who had often had a large hydrocele tapped at the Hoſpital, came one day, as uſual: I made a puncture with a lancet, and let out the water; but was near half an hour, before I could ſtop an hæmorrhage from the wound.

The next day he came again and complained to one of my dreſſers, that he had bled, more or leſs, all the night. He was properly dreſſed; the bleeding reſtrained; and he was adviſed to go home, and keep quiet upon the bed.

The third day, when I was again at the Hoſpital, he came and ſhewed me his ſcrotum; which was as full, and as large, as when I firſt tapped it: the orifice was not healed; and, upon preſſure, blood was diſcharged from it. He ſaid, that he could not afford to reſt from his labour; and my week for accidents being expired, Mr. Crane took him under his care.

He (finding the bloody diſcharge ſtill continued, notwithſtanding the man kept in bed, and was properly taken care of) made a free inciſion into the tumor; turned out a good deal of coagulated blood with his finger; and then, lightly filling the cavity with lint, obtained a ſuppreſſion of the hæmorrhage, and produced a radical cure.

CASE XXVII.

A Gentleman who uſed to come to London about every five or ſix months, to have a large hydrocele emptied, came to me under a great alarm.

Having often had the water drawn off by puncture in London, he determined to let the apothecary of the village where he lived do it for him, and thereby ſave him the trouble of a journey. The operation was very properly performed, and the bag perfectly emptied; but the next morning, to his great aſtoniſhment, he found it as full as before. His apothecary was as much ſurpriſed as himſelf; and the patient got into a poſt-chaiſe, and came immediately to London.

Upon hearing this account, and ſeeing and feeling the tumor, I made no ſcruple of declaring it to be blood; and that if it did not ſoon diſſipate by reſt, and proper applications, it muſt certainly be let out.

All attempts for diſperſion proved fruitleſs, the tumor increaſed, and as his health and habit were good, and his age by no means advanced, I adviſed him to ſubmit to an inciſion; by which, I hoped that he would not only get rid of the preſent evil, but would moſt probably obtain a radical cure. He complied, upon condition that I would firſt by puncture ſatisfy him, that I was right in my conjecture with regard to the contents.

I paſſed a lancet into the fore part, and gave diſcharge to a clear blood: while that was running out, I made, by means of a probe-pointed knife, an inciſion of ſufficient ſize, to admit a doſſil or two of fine lint. For a day or two, the ſymptoms were untowardly, and the diſcharge was large, and bloody; but by proper care, keeping very quiet, and taking freely of the bark with elixer vitrioli, every thing ended well.

CASE

CASE XXVIII.

A Luſty healthy man, about forty, who had the care of a manufacturer's warehouſe in my neighbourhood, conſulted me on account of a large hydrocele of the tunica vaginalis. The tumor was very large, the parts conſiderably on the ſtretch, and I adviſed him to have it tapped directly.

About twenty ounces of clear water were drawn off by means of a trochar, without the appearance of a drop of blood. As he had carried his burthen long, and had never been relieved from it before, he was much ſurpriſed at this immediate eaſe, and went to work as ſoon as he got home.

The next morning he came to me much alarmed, and ſhewed me his ſcrotum; which was full half as big as before the puncture had been made. I had no doubt, that its preſent content was blood; and was very apprehenſive that it might require the ſame treatment, as the preceding caſe; which, in his conſtitution, and manner of living, muſt have been attended with hazard.

I ordered him home to bed immediately; took ſome blood from his arm, and directed a cooling purge to be taken next morning: the ſcrotum was ſuſpended, and wrapped in a rag, folded ſeven or eight times, and wetted in a ſolution of ſal. ammon. crud. in vinegar and water, and he had direction to keep it conſtantly wet. On the third day I bled him again, and ordered him another purge for the fourth, and continued the ſame application.

Finding the ſwelling quite at a ſtand, and imagining that by mending his ſtate of blood, a farther effuſion might poſſibly be prevented, and an opportunity given for the abſorption of what was already ſhed,

I ad-

I adviſed him to take a dram of the cortex every ſix hours: this he did for as many days; during which, the tumor viſibly leſſened: and, by perſiſting in the ſame method, he got well: that is, all that degree of tumefaction, which, I ſuppoſe to have been cauſed by blood, diſappeared. After ſome months the ſcrotum became large again; and he followed the advice which I had given him, viz. to have the fluid drawn off, before it attained too large a ſize. I have ſeveral times ſince tapped it, and always have drawn off a clear fluid.

CASE XXIX.

A MAN, about forty-ſeven, of a ſallow complexion, and ſubject to cholicky complaints, had the water drawn off from a hydrocele of the vaginal coat, by means of a ſmall trochar. The quantity was near a pint, and the bag was perfectly emptied. The next morning, it ſeemed to contain a fluid, although in no great quantity: he ſhewed it to the perſon who tapped him the day before, and who adviſed him to put on a bag-truſs, and to take a ſmart purge. In three days it was ſo manifeſtly increaſed, as to alarm the patient, and make him deſirous of farther advice.

On the ſixth day from the firſt operation, I ſaw him, and found the ſcrotum ſo much inlarged, that I made no doubt, the vaginal tunic contained at leaſt ſeven ounces; which I ſuſpected to be blood.

I adviſed a diſcutient application, and the free uſe of the cortex; but this did not ſuit the humour, either of the patient or of his ſurgeon. He took three or four purges of rad. jallap. and made uſe of a warm fomentation. At the end of about a month, I was deſired to ſee him again. The tumor was larger, and his ſtrength impaired by his purging. It appeared to me to be now of ſuch a ſize, and in ſuch ſtate,

ſtate, that nothing but the operation could ſerve him; and for which I prepared him, if the puncture ſhould produce a diſcharge of blood only. An opening was made with a lancet, and the diſcharge was clear fluid blood: I would have proceeded, but the patient would not permit me: and he was dreſſed with a ſuperficial pledgit, and a plaſter.

Blood oozed from the orifice all that night, and part of the next day; and when I ſaw him again, he could not have loſt leſs than a pint.

I was well aware, what might be the conſequence of a diviſion of the tunica vaginalis, in ſuch a habit; but, at the ſame time, it ſeemed to be the unicum remedium, for he would take no medicine. The hæmorrhage continuing another day, he ſubmitted. The operation diſcovered no one bleeding veſſel; nor did I imagine that it would, being convinced that it came from the inſide of the tunic. He was dreſſed with dry lint, and put to bed with an opiate: all that night, and the ſucceeding day, the diſcharge was large, and bloody: and the lips of the inciſion, on the ſecond, were flabby and free from inflammatory tumefaction. I told him my opinion freely, and preſſed him to take the bark, or have more aſſiſtance; both which, at that time, he refuſed to do.

On the cloſe of the third day, the hæmorrhage ſtill continuing, he becoming ſick and faint, and his pulſe failing a little, he was alarmed, and permitted us to direct for him. A draught, conſiſting of a dram of bark, half a dram of confect. cardiac. and three or four drops of tinct. thebaic. was ordered to be taken every four hours.

Not to make the account tedious, by a relation of every minute circumſtance, he perſiſted in this method, and it was four days before the bleeding ceaſed, or the edges of the inciſion became inflamed, or ſhewed any tendency toward ſuppuration. But at laſt, with ſome difficulty he got well.

CASE

CASE XXX.

A Labouring man, who had fallen down in the ſtreet, with a load on his back, was brought into St. Bartholomew's Hoſpital, on a ſuſpicion of his having got a rupture, in conſequence of his fall; he having immediately perceived a ſwelling in his groin, and ſcrotum, which he had not before.

The tumor ſeemed to occupy the whole ſpermatic proceſs; which was ſo enlarged by it, that it was impoſſible to feel the paſſage of it from the abdomen, through the muſcle: but the teſticle below it was perfectly diſtinct.

The appearance of a tumor, the ſuddenneſs of its formation, the diſtinct ſituation of the teſticle below, and an accidental circumſtance, of the man's not having had a ſtool for two days paſt, inclined Mr. Freke (whoſe week it was) to believe it to be, and to treat it as, a rupture. He made ſome attempts for reduction; and, finding them fruitleſs, determined upon the operation immediately.

He divided the ſkin and membrana adipoſa, down to what he took to be the hernial ſac; and when he had ſo done, had a mind to endeavour at the return of the inteſtine, without opening the ſac.

Mr. Freke was a man not eaſily to be diſſuaded from what he had a mind to do; and, having got the whim into his head, was determined to make the experiment on this, which he thought a fair caſe for the purpoſe. Accordingly (with his probe-ſciſſars) he divided the tendinous opening in the abdominal muſcle; and then again tried to reduce the gut, but to no purpoſe; for nothing would go up. At laſt, tho' with much reluctance, he was obliged to lay open the containing membrane. He had no ſooner done this, than a large quantity of

blood

blood, (partly fluid, and partly grumous) burſt forth, and the whole tumor ſubſided; leaving the proceſs perfectly free; and containing neither inteſtine, nor omentum.

The parts were now waſhed clean, and diligent ſearch made for the breach whence this blood iſſued; but none could be found: the man was dreſſed with lint and pulv. boli armen. (a method of dreſſing, which Mr. Freke was fond of) and, in a proper ſpace of time, the man got well without any new hæmorrhage.

In this caſe, ſome of the circumſtances might be ſaid to render an inteſtinal hernia not improbable; and the want of ſtools might have increaſed ſuch probability: but then, it ſhould have been conſidered, that, although this be one ſymptom of the ſtrangulated inteſtine, yet it is not, by any means, an univocal, or infallible one. A want of ſtools may happen from other cauſes, even in a perſon who has a rupture, but cannot ſingly be a reaſon for the operation immediately; which ought to be indicated and authoriſed by other concomitant ſymptoms and appearances. A coſtive habit may attend a perſon, who has an inteſtinal hernia, when the gut labours under no ſtricture, and does its office perfectly well in the ſcrotum; but ſuch patient will not have the ſymptoms of an incarcerated inteſtine; nor, indeed, had this man. His not having been at ſtool two days before, was an accidental circumſtance; which might or might not have been occaſioned by the deſcent of a piece of the inteſtinal canal: the truth of which ſhould have been proved by the uſe of a clyſter and a purge, before an operation had been performed.

CASE XXX.

A Labouring man, who had fallen down in the ſtreet, with a load on his back, was brought into St. Bartholomew's Hoſpital, on a ſuſpicion of his having got a rupture, in conſequence of his fall; he having immediately perceived a ſwelling in his groin, and ſcrotum, which he had not before.

The tumor ſeemed to occupy the whole ſpermatic proceſs; which was ſo enlarged by it, that it was impoſſible to feel the paſſage of it from the abdomen, through the muſcle: but the teſticle below it was perfectly diſtinct.

The appearance of a tumor, the ſuddenneſs of its formation, the diſtinct ſituation of the teſticle below, and an accidental circumſtance, of the man's not having had a ſtool for two days paſt, inclined Mr. Freke (whoſe week it was) to believe it to be, and to treat it as, a rupture. He made ſome attempts for reduction; and, finding them fruitleſs, determined upon the operation immediately.

He divided the ſkin and membrana adipoſa, down to what he took to be the hernial ſac; and when he had ſo done, had a mind to endeavour at the return of the inteſtine, without opening the ſac.

Mr. Freke was a man not eaſily to be diſſuaded from what he had a mind to do; and, having got the whim into his head, was determined to make the experiment on this, which he thought a fair caſe for the purpoſe. Accordingly (with his probe-ſciſſars) he divided the tendinous opening in the abdominal muſcle; and then again tried to reduce the gut, but to no purpoſe; for nothing would go up. At laſt, tho' with much reluctance, he was obliged to lay open the containing membrane. He had no ſooner done this, than a large quantity of

blood

blood, (partly fluid, and partly grumous) burſt forth, and the whole tumor ſubſided; leaving the proceſs perfectly free; and containing neither inteſtine, nor omentum.

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CASE XXXI.

A Young fellow, ſtraining to get rid of a hard ſtool, felt a ſudden pain in his left groin; and, upon examination, found a ſwelling, extending from thence into the ſcrotum. He took it for a rupture, and immediately applied to an advertiſing operator; who, after ſeveral unſucceſsful attempts to reduce it, put a truſs on him; and told him, that the tumor would gradually ſhrink to nothing. The truſs he wore for ſome days; when, finding both his pain and ſwelling increaſe, he applied to a ſurgeon in his own neighbourhood; with whom I ſaw him.

The tumor was large, and had ſomewhat the feel of an omental hernia; the abdominal aperture ſeemed to be dilated by it; the teſticle was tolerably diſtinct below; his pain in an erect poſture was conſiderable; but in a ſupine one very little: he had neither heat, nor quickneſs of pulſe, nor hiccough, nor vomiting; and had been thrice at ſtool that day.

As there was no reaſon for ſuppoſing any degree of ſtricture on the inteſtinal canal, I adviſed the keeping him in bed, bleeding him freely, and trying what a proper pultice would do.

This method was tried, for ſeveral days; but without any benefit: on the contrary, the pain increaſed, as well as the tumor; and a fluctuation within became palpable.

This fluid, I thought poſſibly might be collected in the ſac of an omental hernia (a caſe which I had more than once ſeen) and as there was plainly enough in quantity to render a puncture perfectly ſafe, we made one with a lancet, and let out ſome ounces of clear blood.

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When the ſwelling was thereby leſſened, we felt for the ſpermatic veſſels, but could diſcern them very indiſtinctly; and the proceſs ſeemed much loaded, and enlarged.

Next day, the man was perfectly well in health; but the ſcrotum looked ſwelled, and black, as if it had been much bruiſed: he had alſo bled from the puncture, which was not cloſed, and diſcharged blood freely, upon any preſſure being made above.

Though we were in ſome doubt, concerning the true nature of the caſe; yet, it was clear, that if the hæmorrhage continued, the part muſt be laid open.

For three or four days it continued, notwithſtanding all our endeavours; and, at laſt, it was ſo conſiderable, as to indicate the operation immediately.

A knife was introduced into the orifice made by the lancet, and an inciſion of ſome length made; but no ſacculus, no particular cavity found; nothing like a hernial ſac, or tunica vaginalis teſtis; in ſhort, nothing but cellular membrane; which ſatisfied us, that the blood muſt come from the ſpermatic chord.

As the bleeding ſtill continued, and was derived from a part above our inciſion, we continued it quite up to the groin, and found that all the cellular membrane of the proceſs was loaded with extravaſated blood; and that it came from a conſiderable breach now in view. We dreſſed it with lint preſſed out from a ſtyptic, and intended to have permitted that dreſſing to have remained on for a day or two: but we were ſoon ſent for on account of an alarming return of the hæmorrhage; which had been ſo conſiderable, as to produce a ſwoon.

Caſtration appeared to us, to be the only remedy; and it was immediately performed.

CASE XXXII.

A Middle-aged man came to St. Bartholomew's Hoſpital, and deſired me to look at a ſwelling in his groin, and upper part of the ſcrotum on the right ſide; which, he ſaid, came ſuddenly, by lifting a heavy weight. From the groin quite down to the teſticle, the ſpermatic proceſs was enlarged; he had no ſymptoms of a hernia; and the teſtis was much too diſtinct and free for a hydrocele.

While I was examining it, I perceived ſome blood to drop from the lower part of the ſwelling; and, upon enquiring the reaſon, he told me, that a puncture had been made in it, a day or two before (upon a ſuppoſition that the ſwelling was from water;) that it had, at intervals, bled ever ſince; but that, ſince it had laſt ſtopped, the tumor was increaſed. From theſe circumſtances, I concluded the ſwelling to be cauſed by blood, ſhed into the tunica communis, from a branch of a varicoſe ſpermatic vein.

He ſubmitted to have it laid open: no particular breach was diſcovered; though the whole membrane was much loaded: the wound was dreſſed with lint preſſed out from ſpirit. vin. Theſe dreſſings were ſuffered to remain on, until they were ſeparated by a beginning ſuppuration: and by keeping quiet, and being properly taken care of, the man got well, without any return of hæmorrhage.

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CASE XXXIII.

A POOR man was brought to my houſe, by a gentleman of the profeſſion, for my opinion concerning a tumor of the ſcrotum.

The ſwelling was large; of a globular kind of form; painful, not only in general from its weight, but often even when ſuſpended, or when the patient was in bed. It palpably contained a fluid; but the fluctuation of that fluid was not (to my fingers) like the fluctuation of water. In all the poſterior part of the tumor, an enlarged, and ſomewhat hardned teſticle might plainly be diſtinguiſhed; and the general weight of the whole, far exceeded that of any hydrocele I had ever met with of equal ſize. That it was not a mere ſimple hydrocele, I was very clear: but, whether it was a collection of fluid in the tunica vaginalis of a diſeaſed teſticle (what is in general called a hydroſarcocele) or what other morbid or altered ſtate of parts it might be owing to, I would not pretend to ſay. A puncture was made in it with a ſmall trochar; and about four ounces of dark-coloured blood, not ſo fluid as blood generally is while circulating in its proper veſſels, was drawn off; a bit of plaſter and lint was applied to the orifice, and the man went about his buſineſs.

In two days, the ſame ſurgeon brought the man to me again. The puncture was healed; but the tumor was as large as when I had ſeen it two days before, and palpably contained the ſame kind of fluid. What that was we knew: and the conſideration was, what was the propereſt method of giving the man relief. Had he been in good health, I believe, I ſhould have adviſed laying the tumor open; at leaſt ſo far as to have obtained a more preciſe knowledge of its nature:

ture: but the patient's age, and general health were ſuch, as would by no means make an operation of that ſort an eligible thing. He was near to ſixty; aſthmatic, had drank freely, and had a yellow countenance, and ſwelled legs in conſequence of it. I adviſed him to come into the hoſpital, and try, whether by proper care his habit might not be mended. Soon after his admiſſion, I had a mind to ſee, whether the contents of the tumor were really the ſame as before, and made a puncture in it again with the trochar: the diſcharge was again blood; and it was two days from this operation, before a bloody diſcharge from the orifice ceaſed.

A continuance of dram-drinking brought on a general anaſarca, and an extravaſation of water in the abdomen; and when he had been in the hoſpital about two months, he died.

I would not omit the opportunity of examining his ſcrotal diſorder; and found, that the trochar had, at each operation, pierced the tunica albuginea; that the bloody extravaſation was within that coat; that the tunica vaginalis was almoſt univerſally, though ſlightly, adherent to the ſurface of the albuginea; that the vaſcular compages of the whole teſticle was much enlarged, and at the ſame time ſo looſened, that a part ſeemed to have been diſſolved into the fluid which produced the fluctuation, which fluid was mere blood; and that the epididymis was hardned, and very conſiderably enlarged.

I have ſince had an opportunity of ſeeing a patient labouring under the ſame complaint; whoſe teſticle was rather haſtily, and inadvertently laid open; that is, divided. The immediate conſequence was a large, and obſtinate hæmorrhage. Whether it was produced by the diviſion of the ſubſtance of the teſticle, or by the irritation of ſuch applications as were made uſe of for ſtopping the bleedings, I will not pretend to ſay: but when I ſaw him, he had a rigid neck; and was (what is commonly called) jaw locked. Caſtration, from the ſtate in

which

which his teſticle was when I ſaw it, muſt have been the only remedy for his local complaint; but his ſpaſmodic attack rendered that improper, and every thing elſe fruitleſs.

I have alſo (from a very ingenious practitioner of my acquaintance) received an account of a ſimilar caſe; in which the teſticle was divided, and the hæmorrhage (from the patient's obſtinate refuſal to ſubmit to the operation of caſtration) proved at laſt fatal.

SECT. X.

TO the different kinds of hydrocele, which have already been mentioned, ſome of the modern French writers have added another, viz. that which is formed by a collection of fluid, in the ſac of a true hernia.

The title of this clearly deſcribes its true nature; and therefore I ſhall only inform the reader, of what has fallen within my own knowledge relative to this diſeaſe.

CASE XXXIV.

A Young fellow, about twenty-five years old, applied to me, on account of a ſwelling in his ſcrotum. It was large, of an irregular figure, not very tenſe, perfectly indolent, and accompanied with a remarkable fulneſs of the ſpermatic proceſs.

The account which he gave of himſelf was, that he had had a rupture, as long as he could remember: that he had, on that account, worn a ſteel truſs for many years; that, upon taking his truſs off, his rupture always came down immediately, and was very eaſily returned

up

up again; that it had never occaſioned any obſtruction in his ſtools, nor given him any pain; that, about a year ago, he had been perſuaded to leave his truſs off, and to ſubſtitute in its place, a bandage made of dimotty, without any iron in it; but which had been buckled on very tight: that, when he had worn this bandage about ſix months, he found that his rupture was down, and that he could not get it up again; that, upon this, he had applied to the perſon of whom he bought the bandage; who, after having ineffectually tried to reduce the rupture, ſold him another bandage, and buckling it on ſtill tighter than the firſt, aſſured him, that it would never do him any harm; that from the time of putting on this ſecond, his ſcrotum had gradually become larger, with conſiderable pain and uneaſineſs.

From the feel of all the lower part, I made no doubt, that the tumor contained a conſiderable quantity of fluid; and had there been no other circumſtance to influence my judgment, I ſhould have ſuppoſed the diſeaſe to have been a hydrocele of the tunica vaginalis teſtis: but the very diſtinct and particular account, which the man gave of himſelf, and the feel, and the appearance of the ſpermatic proceſs, made me heſitate.

Whatever might be the true nature of the caſe, a fluid there certainly was; and that in quantity ſufficient to render the diſcharge of it both ſafe and warrantable. I made a puncture in the middle and anterior part, and let out above a pint of brown ſerum. This diſcharge removed all the ſwelling from below; but made little or no alteration, either in the look, or the feel of the upper part of the proceſs. I endeavoured to reduce it; but found it impracticable, and deſiſted; adviſing the man to let it alone, to wear no bandage of any kind; and if at any future time, it became troubleſome to him, I deſired that I might ſee it.

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In about a year's time, he came to me again, with his ſcrotum as big as before, and palpably containing a fluid.

As I had felt the teſticle very plainly after the firſt operation, and as I did not believe the tumor in the proceſs to be formed by the inteſtine, I adviſed him to have the whole laid open. He ſubmitted, and I took him into the hoſpital for that purpoſe. I made an inciſion, from the middle and anterior part of the ſcrotum, quite up to the groin, and found in the lower part of the bag, which contained the fluid, the teſticle covered only by its proper coat, or tunica albuginea; and in the upper part, or neck of the ſame bag, a conſiderable portion of omentum. The upper part of this portion of caul was hardned in its texture, and ſo perfectly adherent to every point of the neck of the ſac, as to prohibit the return of even a fluid from thence into the belly: but the lower part was in its natural ſtate, looſe, ſoft, and capable of being expanded. All the lower, or looſe part, I cut off, without making a ligature, or being troubled with any hæmorrhage; the upper part I left as I found it; filled the wound lightly with dry lint, and treated the caſe as I ſhould have done that of the radical cure for an hydrocele. In about ſeven weeks the man got well, and has ever ſince remained ſo.

This man's rupture was of the congenial kind; and therefore the ſac of the hernia, and that of the hydrocele, were the ſame, viz. the tunica vaginalis teſtis.

CASE XXXV.

WHILE the firſt edition of this book was in the preſs, Mr. Spray deſired me to viſit a patient with him, who had ſome preſſing ſymptoms of a ſtrangulated rupture.

The patient was a healthy young man, about twenty-two years old, and he gave the following account of himſelf:

That as long as he could remember, he had been ſubject to a rupture, which never came lower than his groin; was always eaſily put up, and had never given him any trouble: that he had, when a child, worn a truſs; but, either from its being ill-made, or from his not knowing how to put it on, it had never anſwered the purpoſe; and that he had, for ſome years, diſuſed it; that, for a month or two paſt, his rupture had been conſtantly down; and that, within that ſpace of time, he had never been able to return it, though he had often tried; that ſtill, as it gave him no pain, nor produced any other inconvenience than the mere ſwelling of the ſcrotum, he had taken no notice of it, nor applied to any body for aſſiſtance, until within the laſt three days; ſince which, he had been affected with great pain in his belly, a ſtoppage of ſtools, and a vomiting.

The lower part of the ſcrotum was much inlarged; contained a conſiderable quantity of fluid; and bore very much the appearance of a hydrocele; but the upper part, or ſpermatic proceſs, was hard, and painful, and ſeemed to be girt tight by the tendon of the abdominal muſcle. This, added to an extreme tightneſs of his belly, want of ſtool for three days paſt, anxiety, reſtleſſneſs, vomiting, and beginning hiccough, determined me to propoſe the operation immediately.

The lad conſented, and I made an inciſion from the upper part of the tumor, juſt above the abdominal opening, quite down to the bottom of the ſcrotum.

Having carefully divided the cutis and common membrane, I came to what appeared to be a hernial ſac; this I opened, and thereby let out about half a pint of clear limpid water; upon the diſcharge of which, the whole tumor of the ſcrotum ſubſided; and my aſſiſtants were

were convinced, that I had miſtaken a hydrocele for a hernia. But although the whole of the ſwelling of the ſcrotum was entirely diſſipated by the diſcharge, yet the tumor and hardneſs about the abdominal opening was unaltered, and the patient's pain the ſame. With a probe-pointed knife I laid open the whole ſac, whence the water had proceeded, quite down to its bottom; and found the naked teſticle within it: this gave the diſeaſe ſtill more the appearance of a hydrocele, and I began to think that it was ſo; but, upon paſſing my finger up, to examine the ſtate of the abdominal tendon, I found a ſmall portion of inteſtine engaged in it, and bound extremely tight; I lengthened the inciſion, ſo as to have a fair view of it, and thereby we all became thoroughly ſatisfied of the true nature of the caſe. The piece of inteſtine was ſmall, a good deal darkned in color, and bound ſo tightly by the tendon, that it was with great difficulty that I could introduce my finger for the conveyance of the knife. When I had made a ſufficient dilatation, I endeavoured to return the gut; but could not execute it, although there was no obſtruction from the tendon. I drew out ſome inches of it, thinking, that I might thereby be enabled to make the return more eaſily; that which I drew out, I replaced with the utmoſt eaſe; but could not diſengage the ſmall portion which made the original diſeaſe. At laſt, paſſing my finger round in the dilated opening, I found that the inteſtine adhered to the lower border of it, by a ſmall membranous filament; upon the diviſion of which, the gut ſlipped in immediately.

The young man had ſtools very ſoon; and, by proper care, very ſoon got well.

This alſo was a congenial hernia; the ſac which contained the inteſtine, the fluid, and the teſticle, being the tunica vaginalis: but had I been contented with merely dividing the tunic, and had not

proceeded in the examination and diviſion of the abdominal tendon, the lad would have been deſtroyed by the ſtricture.

SECT. XI.

THE reſt of the falſe herniæ (as they are called) are the pneumatocele, the varicocele, the cirſocele, and the ſarcocele; to which, ſome have added the hydro-ſarcocele.

The firſt of theſe is (as I have already ſaid) a miſtake: there is no hernia produced by mere wind. The two diſeaſes which, in new-born children, and infants, are taken for, and called wind-ruptures, are, a tumor produced by a ſmall quantity of fluid remaining in the lower part of the tunica vaginalis, after its communication above with the cavity of the belly is cloſed; and a true (but ſmall) inteſtinal hernia.

The varicocele, is a dilatation of the blood-veſſels of the ſcrotum. Theſe are of different ſize, in different people; and, like the veſſels in other parts of the body, are liable to become varicoſe; but are ſeldom ſo much inlarged as to be troubleſome, unleſs ſuch inlargement is the conſequence of a diſeaſe, either of the teſticle, or of the ſpermatic chord. When this is the caſe; the original diſeaſe is what engages our attention, and not this ſimple effect of it; and therefore, conſidered abſtractedly, the varicocele is a diſeaſe of no importance.

The cirſocele, is a varicoſe diſtention and inlargement of the ſpermatic vein; and, whether conſidered on account of the pain which it ſometimes occaſions, or on account of a waſting of the teſticle, which now and then follows it, may truly be called a diſeaſe. It is frequently miſtaken for a deſcent of a ſmall portion of omentum.

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The uneaſineſs which it occaſions is, a dull kind of pain in the back, generally relieved by ſuſpenſion of the ſcrotum. It has been reſembled to a collection of earth-worms; but whoever has an idea of a varicoſe veſſel, will not ſtand in need of an illuſtration by compariſon. It is moſt frequently confined to that part of the ſpermatic proceſs, which is below the opening in the abdominal tendon; and the veſſels generally become rather larger, as they approach nearer to the teſtis. In books, are to be found preſcriptions for leſſening the diſtended veins; but I cannot ſay, that I ever ſaw any good effect, from external applications of any kind.

In general, the teſticle is perfectly unconcerned in and unaffected by this diſeaſe; but ſometimes it happens, that it makes its appearance very ſuddenly, and with acute pain; requiring reſt and eaſe: and ſometimes, after ſuch ſymptoms have been removed, I have ſeen the teſticle ſo waſted, as hardly to be diſcernible.

CASE XXXVI.

A Young fellow, on a journey, found himſelf one evening more than ordinarily tired; and, as ſoon as he got to bed, was ſeized with a violent pain in his back; which (to uſe his own words) ſhot down into his ſtone.

The pain was ſo great, as to oblige him to ſend for ſomebody immediately, who bled him freely: this produced no relief, nor was the pain yet attended with any tumor of the ſcrotum, or teſticle; or by any appearance whatever of the parts affected. The pain continued, without remiſſion, all the next day: he was again let blood, had a clyſter, and a gentle purge. On the third day, toward evening, the pain totally left him, and a fulneſs appeared in the groin, tending down

down toward the teſticle: this made him ſo uneaſy, that, finding the apothecary, who had the care of him, did not ſeem clearly to know what it was, he got into a poſt-chaiſe, and came home to London.

His journey brought on a return of pain: but by loſing ſome more blood, keeping in bed, applying an emollient pultice to the groin, and ſuſpending the parts in a bag-truſs, he became eaſy, and all the tumefaction diſperſed; except a ſmall fulneſs of the ſpermatic chord, occaſioned by the varicoſe ſtate of its veſſels. But the teſticle was ſo diminiſhed, as to be hardly perceptible; and remains ſo, to the time of my writing this.

CASE XXXVII.

AN oſtler, at an inn in Smithfield, was, by the fall of a horſe, thrown over his head, and his groin ſtruck againſt the pommel of the ſaddle. It gave him exquiſite pain; and he was brought immediately to the Hoſpital, upon a ſuppoſition that he had burſt himſelf.

Upon examination, no ſwelling appeared, either of the teſticle or of the ſpermatic chord; but the pain (which he ſaid was exquiſite) was confined to that part of the latter, which is between the teſticle and the groin.

He was largely blooded, had a clyſter, and a purge; his pain continued two days; and, when it left him, the ſpermatic veſſels became greatly varicoſe. No application, which was made uſe of on this account, proved at all beneficial; that is, rendered the diſtended veſſels at all leſs; and, when he left the Hoſpital, he was perfectly free from pain; but his teſticle, on that ſide, was ſcarce diſcernible.

I once

I once ſaw the ſame effect, from the injudicious application of a truſs, on a true cirſocele, the veſſels, by means of the preſſure, became inlarged to a prodigious ſize, but the teſticle ſhrunk to almoſt nothing.

CASE XXXVIII.

A Young gentleman about twenty-five years old, after having heated himſelf much with exerciſe, went too ſoon into a river to bathe. In the middle of the enſuing night, he was ſeized with a coldneſs, and ſhivering; which were followed with great heat, and thirſt, and a ſlight ſweat. He ſent for a ſurgeon, who bled him and gave him a clyſter, bid him keep in bed, and drink plentifully. Next day, he gave him a laxative medicine, and ſome febrifuge draughts.

For three days, his fever was unremitting; but on the fourth he became cooler, and was ſeized with a moſt acute pain in his loins; for which he was again bled, and purged. On the fifth day, his back became eaſy; but both teſticles, though very little ſwollen, were ſo tender, as hardly to admit the touch; and, in a very few hours, the ſpermatic veſſels were ſo diſtended, as to make an apparent tumor. By means of fomentation, pultice, and reſt, all uneaſineſs was removed, in about a fortnight; but, at the end of that time, both patient and ſurgeon were exceſſively aſtoniſhed, at not being able to find the teſticles. The latter came to London immediately, and deſired me to examine him, after having given me the preceding account.

The ſpermatic veſſels were full, and varicoſe; the vaſa deferentia too large, and rather too hard; as were alſo the epidydimes; but there was not, on either ſide, the leaſt appearance of a natural teſticle: a flattened,

flattened, compreſſed kind of membranous ſubſtance (which, I ſuppoſe, was the tunica albuginea) ſeemed to hang from each epidydimis; but there was not any trace or veſtige of the glandular or vaſcular parts of either teſtis.

This is the only time, I ever ſaw this complaint on both ſides, in the ſame ſubject.

SECT. XII.

The Sarcocele, or diſeaſed Teſticle.

THIS is a diſeaſe of the body of the teſticle; and, as the term implies, conſiſts, in general, in ſuch an alteration, made in the ſtructure of it, as produces a reſemblance to a hard fleſhy ſubſtance, inſtead of that fine, ſoft, vaſcular texture, of which it is, in a natural and healthy ſtate, compoſed.

The antient writers have made a great number of diſtinctions, of the different kinds of this diſeaſe, according to its different appearances, and according to the mildneſs or malignity of the ſymptoms, with which it may chance to be attended. Thus, the ſarcocele, the hydro-ſarcocele, the ſchirrhus, the cancer, the caro adnata ad teſtem, and the caro adnata ad vaſa, which are really little more than deſcriptions of different ſtates and circumſtances of the ſame diſeaſe, are reckoned as ſo many different complaints, requiring a variety of treatment, and deriving their origin from a variety of different humors.*

Every

* "Humores craſſi ſunt duo, pituita et melancholia, e quibus tum ſchirrhi in aliis partibus, tum indurationes carneæ in teſticulis oriuntur. Tumor hic eſt durus, tactui renitens, indolens, et ſi exquiſitus ſit ſchirrhus, ſenſu caret. Si a melancholia oriatur, color ſublividus; ſi a pituita, colorem cutis non mutat; ſi a melancholia ſuperaſſata, dolor punctorius, et inequalis tumor; hic durus, ibi mollis." FAB. AB. AQUA.

Every ſpecies of ſarcocele conſiſts primarily in an inlargement, induration, and obſtruction of the vaſcular part of the teſticle; but this alteration is, in different people, attended with ſuch a variety of circumſtances, as to produce ſeveral different appearances; and to occaſion the many diſtinctions which have been made.

If the body of the teſticle, though inlarged, and indurated to ſome degree, be perfectly equal in its ſurface, void of pain, has no appearance of fluid in its tunica vaginalis, and produces very little uneaſineſs, except what is occaſioned by its mere weight, it is uſually called a ſimple ſarcocele, or an indolent ſchirrhus. If, at the ſame time that the teſtis is inlarged, and hardened, there be a palpable accumulation of fluid in the vaginal coat, the diſeaſe has by many been named a hydro-ſarcocele. If the lower part of the ſpermatic veſſels, and the epidydimis were inlarged, hard, and knotty, they ſuppoſed it to be a fungous or morbid accretion, and called it the caro adnata ad vaſa; if the teſticle itſelf was unequal in its ſurface, but at the ſame time not painful, they diſtinguiſhed it by the title of caro adnata ad teſtem: if it was tolerably equal, not very painful, nor frequently ſo, but at the ſame time hard and large, they gave it the appellation of an occult or benign cancer; if it was ulcerated, ſubject to frequent acute pain, to hæmorrhage, &c. it was known by that of a malignant or confirmed cancer. Theſe different appearances, though diſtinguiſhed by different titles, are really no more than ſo many ſtages, (as it were) of the ſame kind of diſeaſe: and depend a great deal on ſeveral accidental circumſtances; ſuch as age, habit, manner of living, &c. It is true, that many people paſs ſeveral years with this diſeaſe, under its moſt favourable appearances, and without encountering any of its worſt; but, on the other hand, there are many, who, in a very ſhort ſpace of time, run through all its ſtages. They, who are moſt converſant with it, know, how very convertible its mildeſt ſymptoms are,

into its moſt dreadful ones; and how very ſhort a ſpace of time often intervenes between the one and the other.

There is hardly any diſeaſe, affecting the human body, which is ſubject to more variety than this is, both with regard to its firſt manner of appearance, and the changes which it may undergo.

Sometimes the firſt appearance is a mere, ſimple, inlargement, and induration of the body of the teſticle; void of pain, without inequality of ſurface, and producing no uneaſineſs, nor inconvenience, except what is occaſioned by its mere weight. And ſome few people are ſo fortunate, to have it remain in this ſtate for a very conſiderable length of time, without viſible or material alteration. On the other hand, it ſometimes happens, that, very ſoon after its appearance in this mild manner, it ſuddenly becomes unequal, and knotty; and is attended with very acute pains, darting up to the loins and back; but ſtill remaining entire, that is, not burſting through the integuments. Sometimes the fury of the diſeaſe brooks no reſtraint; but, making its way through all the membranes which invelope the teſticle, it either produces a large, foul, ſtinking, phagedenic ulcer with hard edges; or it thurſts forth a painful gleeting fungus, ſubject to frequent hæmorrhage.

Sometimes (as I have already obſerved) an accumulation of water is made in the tunica vaginalis, producing that mixed appearance, called the hydro-ſarcocele.

Sometimes there is no fluid at all in the cavity of the tunica vaginalis; but the body of the teſticle itſelf is formed into cells, containing either a turbid kind of water, a bloody ſanies, or a purulent, fœtid matter.

Sometimes the diſorder ſeems to be merely local, that is, confined to the teſticle, not proceeding from a tainted habit, nor accompanied with diſeaſed viſcera; the patient having all the general appearances,

and circumſtances of health, and deriving his local miſchief from an external injury. At other times, a pallid, leaden countenance, indigeſtion, frequent nauſea, cholic pains, ſudden purgings, &c. ſufficiently indicate a vitiated habit, and diſeaſed viſcera; which diſeaſed viſcera may alſo ſometimes be diſcovered and felt.

The progreſs alſo which it makes from the teſtis upward, toward the proceſs, is very uncertain; the diſeaſe occupying the teſticle only, without affecting the ſpermatic proceſs, in ſome ſubjects, for a great length of time; while, in others, it totally ſpoils the teſticle very ſoon; and, almoſt as ſoon ſeizes on the ſpermatic chord *.

Theſe, and ſome other circumſtances to be mentioned hereafter, are materially neceſſary to be obſerved; as they characteriſe the diſeaſe, point out its particular nature and diſpoſition, and ſerve as marks whereon to found our judgment and prognoſtic of the moſt probable event, as well as the moſt proper method of treatment. Various have been the cauſes, to which theoretic and whimſical people have aſſigned this diſeaſe; but as a recital of conjectures can convey no inſtruction, or uſeful information, I ſhall paſs them over; and only take notice, that among the great number, which have been mentioned, there are two which, though equally groundleſs with the reſt, have yet obtained a degree of credit, that may miſlead: theſe two are the hernia humoralis, and the hydrocele of the vaginal tunic.

The hernia humoralis is a defluxion of the inflammatory kind, proceeding moſt frequently from an irritation in that part of the urethra,

* This is the common language, and therefore I uſe it; but I would not be underſtood to mean, that the progeeſs of the diſeaſe is always and invariably upward, from the teſtis into the proceſs. I have ſeen the ſpermatic proceſs truly cancerous, when the teſticle has been free from diſeaſe; and am well ſatisfied from experience, that a diſeaſed ſtate of the veſſels within the abdomen, or of the parts in connection with thoſe veſſels, may produce a morbid ſtate of the proceſs, proceeding downwards from thence: but the other is by much the moſt frequent.

where the vaſa deferentia or veſiculæ ſeminales terminate. It is attended with pain and heat, and moſt frequently fever: during the firſt, or inflamed ſtate of the diſeaſe, the whole compages of the teſticle is inlarged; but when by reſt, evacuation, and proper applications, that inflammation is calmed, there ſeldom or never remains, either fulneſs, hardneſs, or any other mark of diſeaſe in the glandular part of the teſtis. The epidydimis indeed ſeldom eſcapes ſo well; that often continues inlarged, and indurated, for a conſiderable ſpace of time, but without producing either pain or inconvenience; and without occaſioning any alteration in the figure or ſtructure of what is called the body of the teſticle; whereas the true ſarcocele, or hernia carnoſa, moſt commonly * begins by an indolent induration of that part of the teſtis, and affects the epidydimis ſecondarily; or, after it has already ſpoiled the vaſcular part of the gland.

I would not be underſtood to mean, that a ſarcocele never follows a hernia humoralis; there is no reaſon in nature why it ſhould not: a hernia humoralis does not, nor can, prevent the teſticle, in any future time, from becoming ſchirrhous: I only ſay, that it does not, at any time, neceſſarily cauſe or produce it. So alſo with regard to the epidydimis, I do not mean to ſay, that it never is the primary and original ſeat of a ſchirrhus; I know that it is, and ſhall produce ſome inſtances of it: neither do I intend to ſay, that a ſchirrhus never attacks an epidydimis, which has been previouſly hardned by a hernia humoralis; there can be no reaſon why it ſhould not: I only mean to ſignify, that it is my opinion, that the induration cauſed by a venereal hernia humoralis does not, at any time, neceſſarily produce a ſchirrhus. A ſchirrhus, indeed, may fall on that part, after it has been ſo diſeaſed; but it would as certainly have attacked it, if there had been no preceding affection of it.

There

* I ſay moſt commonly, becauſe it is neither neceſſarily, nor always,

There is alſo a venereal affection of the teſticle, independant of a gonorrhea, or of any diſeaſe of the urethra.

This is ſeldom an early ſymptom; and I do not remember ever to have ſeen an inſtance in which it was not either immediately preceded, or accompanied, by ſome other appearance, plainly venereal. It has neither the inequality, nor darting pains of the ſchirrhus, and always gives way to a mercurial proceſs properly conducted.

A quantity of water is frequently collected in the vaginal coat of a truly ſchirrhous teſtis. This has given riſe to the ſuppoſition, that the teſticle often becomes diſeaſed, from its being ſurrounded by, or ſwimming in the ſame fluid: a ſuppoſition, entirely groundleſs.

That ſchirrhous and cancerous teſtes very frequently are found to have a quantity of fluid accumulated in the tunica vaginalis of them, is beyond all doubt; but that ſuch teſticles become diſeaſed, in conſequence of being ſurrounded by ſuch fluid, or, in other words, that a ſimple hydrocele may produce a ſchirhous teſticle, is by no means true.

The ſimple hydrocele is (as I have already at large obſerved) a collection of water in the tunica vaginalis: this fluid, in a natural and healthy ſtate of the parts, is ſmall in quantity, and, by being conſtantly abſorbed, does not diſtend the cavity of the tunic, but only ſerves to keep that membrane from contracting any unnatural coheſion with the tunica albuginea. The regular abſorption of this fluid being by ſome means prevented, the quantity ſoon becomes conſiderable, and diſtending its containing bag, conſtitutes the diſeaſe called a hydrocele; but makes no morbid alteration in the ſtructure of the teſticle. *

When

* That is, no ſuch alteration as renders it painful, or incapable of executing its office; and, conſequently, no ſuch alteration as can ever require extirpation, or any other chirurgical operation on the teſticle itſelf.

When the teſticle becomes inlarged in ſize, hardened in texture, craggy and unequal in its ſurface, painful upon or after having been handled, attended with irregular pains ſhooting up the groin toward the back, and this without any previous inflammation, diſeaſe, or injury from external violence, it is ſaid to be affected with a ſchirrhus. This, as I have already remarked, is of different kinds and degrees, and appears under different forms; but although the appearances, which the diſeaſe makes, are various, according to the alteration produced by it in the teſticle, yet, every ſuch morbid alteration may obſtruct, or prevent the regular abſorption of the fluid depoſited in the vaginal tunic, and occaſion a ſpecies of hydrocele; that is, a tumor from water.

This is that kind of diſeaſe, which, by Fabritius ab Aquapendente, is called hydro-ſarcocele; but which is ſo very unlike to a ſimple hydrocele, that whoever miſtakes the one for the other, will commit an error, which may prove very miſchievous to his patient, and very detrimental to himſelf.

In the true, ſimple hydrocele, the teſtis, though ſomewhat looſened in its texture, and a little inlarged, yet preſerves very nearly its natural form; the collection is made without pain or uneaſineſs, and very ſoon becomes ſufficient to hide, or conceal, the teſticle; nor is the examination of ſuch tumor attended with any pain: but the increaſed ſize, and hardened ſtate, of the ſchirrhous teſtis, renders it diſcoverable, through a much larger quantity of fluid than will totally conceal the former. When felt, it will be found to be hard, and generally ſomewhat unequal, and not unfrequently attended with irregular ſhooting pains, eſpecially after having been examined.

In the ſimple hydrocele, the fluid diſtends the tunica vaginalis ſo equally, that, although it does not ſurround the teſticle (nor indeed can) yet it ſeems ſo to do: whereas in the hydro-ſarcocele, though

the

the anterior part of the tumor may, in ſome meaſure, bear the appearance of a ſimple hydrocele; yet, an examination of its poſterior part will always diſcover the true nature of the caſe:* to which may be added, that, under the ſame apparent magnitude, the latter will always be found to be conſiderably heavier than the former.

In ſhort, the name of this ſpecies of diſeaſe (hydro-ſarcocele) is, undoubtedly, a very proper one, and capable of conveying a very juſt idea of its true nature, viz. an accumulation or collection of water in the vaginal coat of a ſchirrhous or diſeaſed teſticle; but the majority of writers have, by ſuppoſing the water to be the cauſe, inſtead of the conſequence of the diſeaſed ſtate of the teſtis, committed a very material blunder, and endeavoured to eſtabliſh and authorize a very prejudicial and deſtructive method of practice. For, by conceiving that the noxious quality of the fluid produces a fungous or fleſhy excreſcence on the ſurface of the teſticle, they have ſuppoſed, that after having diſcharged the ſaid fluid from its containing bag, they could, either by eſtabliſhing a ſuppuration, or by uſing eſcharotic medicines, waſte or deſtroy the ſaid excreſcence, and obtain a radical cure of the whole diſeaſe. Now the ſchirrhoſity of the teſticle being the original diſeaſe, and the extravaſation a mere accident, ſuch treatment can never do any material good, and may often be the cauſe of very eſſential evil.

Fabritius

* This has been very judiciouſly remarked by Mr. Le Dran. Schenkius gives an account of a beginning ſarcocele, which was miſtaken for an hydrocele; upon which a radical cure was performed by caſtration. Upon dividing the body of the teſtis, a quantity of thick fluid was diſcharged; a thing by no means uncommon, but which was here miſtaken for ſemen. The patient died, not long after the wound was healed; and the kidney on that ſide, and the parts about it, made a very morbid appearance. This appearance was by Schenkius ſuppoſed to be owing to the haſty cure of the hydrocele; but was indeed the effect of the ſame virus which had firſt ſpoiled the teſticle. Neither was the fluid in the body of it ſemen, but ſanies or matter; a circumſtance moſt frequently met with in ſchirrhous teſtes.

Fabritius ab Aquapendente has given a particular deſcription of this method, which he recommends, from having practiſed it with ſucceſs: his words are "Modus ſingularis eſt quando hernia aquoſa cum car-" noſa miſta eſt; tunc enim primum incide, et fac foramen in parte " ſcroti quæ not ſit declivis, neque in fundo ſcroti, ſed circa medium; " nec fac admodum latum: et extracta aqua, turundam impone quam " longiſſimam, medicamento, pus moventi infectam, ut reſina tere-" binthinæ, cum thure, ovi vitello, et butyro; emplaſtrum emol-" liens, et pus movens applica, ut diachylon cum gummis, et axun-" gia porci: genitum autem pus, non evacuetur per foramen, ſed " data opera intus ſervetur, ut *contactu ſuo, carnem ſenſim putrefaciat*. " Neque innovanda medicamenta, niſi tota *caro fuerit in pus converſa*; " id quod longo fit tempore."*

Now, to paſs over the abſurdity of the doctrine of removing or diſſolving a fungous excreſcence, by means of the putrefying quality of matter; as well as the great diſturbance, which muſt be the conſequence of confining it within the tunica vaginalis; it is very clear from theſe, and from every other circumſtance attending the diſeaſe in queſtion, that the caſes, which Fabritius had ſucceſsfully made his experiment upon, muſt have been mere ſimple hydroceles, attended with a ſmall degree of inlargement; but without any diſeaſed ſtate of the teſticle.

This is one method of procuring a radical cure of the ſaid diſeaſe: a method in uſe, before Fabritius practiſed it; and ſtill, in ſome meaſure, employed: a method, which, in ſome inſtances, has always been ſucceſsful; and which may, in general, be tried on any ſimple hydrocele,

* "Si carnoſa, et aquoſa ſit hernia, ego talem adhibeo curam; ſeco cutem, et inci-" ſionem facio exiguam, et in loco potius altiore, quam in fundo: inde turunda impo-" ſita cum digeſtivo et pus movente medicamento diutius procedo, neque unquam pus " extraho, ſed perpetuo bonam partem intus relinquo; quod ſenſim carnem corrodit, et " ita ſanat."

hydrocele, in a young and healthy ſubject. The cure (when it effects one) is not brought about by the deſtruction of an excreſcence from the teſticle, or the diſſolution of its ſuppoſed induration; but merely by exciting ſuch an inflammation, as ſhall occaſion an adheſion of the tunica vaginalis to the tunica albuginea; by which means, the cavity of the former is obliterated; the teſticle remaining, as to ſize and conſiſtence, juſt as it was before ſuch operation was performed.* But this, though practicable, and ſometimes ſucceſsful in the hydrocele, is not to be thought of in the diſeaſed or ſcirrhous teſticle. The operation, as deſcribed by Aquapendente, conſiſts of two points; firſt to let out the water, and then to cauſe a plentiful ſuppuration. When the teſticle is really and primarily diſeaſed, and the extravaſation is a conſequence of ſuch diſeaſe, the diſcharge of the water from the cavity of

* Another method of treating this diſeaſe, in uſe before Fabritius ab Aquapendente (as may be ſeen in Guido and others) and much preferable, if uſed in proper caſes, is the method by ſeton.

This, as I have already obſerved, I have ſeveral times practiſed with ſucceſs, in thoſe who would not ſubmit to inciſion, or in whom it was by no means proper.

Fabritius ab Aquapendente had a different, and that an erroneous, idea of this diſeaſe: he conceived, that there was a fungous kind of excreſcence on the teſticle, and that this excreſcence required eroſion and deſtruction; this he aimed at accompliſhing, by means of the matter collected within; and therefore his principal aim was to confine and increaſe it, by making his puncture, for the introduction of his tent, in the upper part of the tumor; and by imbuing it, from time to time, medicamentis pus moventibus.

Had he been right in his idea, his practice would have been juſt: but his conception of the diſeaſe was erroneous, and his practice abſurd. The rational intention ſhould be, to excite ſuch a degree of inflammation, as may produce an union between the tunica vaginalis and the albuginea: the formation of matter is a mere accidental conſequence of this inflammation; and the means uſed to procure the end (provided it be procured) cannot be too gentle. The matter is of no real uſe, and therefore it is ſo far from being neceſſary to confine it, that if the conjunction of the coats can be obtained, without the formation of any, it is ſo much the better.

of the tunica vaginalis, whether by puncture, or by inciſion, can contribute nothing material toward a cure of the principal complaint, and is therefore uſeleſs; but it may, in many caſes, do harm, by creating a diſturbance in parts, whoſe ſtate requires the moſt perfect quietude; and is therefore wrong. When the diſeaſe is a mere, ſimple hydrocele, the palliative cure, as it is called, by puncture, is right and neceſſary; it renders the life of the patient eaſy; rids him, every now and then, of a very troubleſome burden; is perfectly ſafe; may be performed, and repeated occaſionally, at any time of the patient's life, or in almoſt any ſtate of the diſeaſe: but the introduction of tents or ſetons, or the endeavour by any means to excite inflammation, or to eſtabliſh ſuppuration within the tunica vaginalis, requires (even in the ſimple hydrocele, where the teſticle is unaffected) ſome little conſideration, and ought not to be haſtily, or unadviſedly, put in practice.

In ſome ages, habits, &c. the ſymptoms will riſe very high, and occaſion both trouble and hazard: and if this be the caſe, when the teſtis is not at all diſeaſed, and when there is no malignity, either in the local complaint, or in the habit of the patient; what have we not to fear where there is both? where the parts are already ſpoiled by diſeaſe, and where irritation and inflammation may (and do) excite the moſt fatiguing ſymptoms, and the moſt direful conſequences?

Beſide the hydro-ſarcocele, or limpid extravaſation of fluid, in the cavity of the vaginal coat, (and which muſt therefore always be external to the teſticle) ſchirrhous and cancerous teſtes are liable to collections of fluid, within the ſubſtance of them, under the tunica albuginea *. Theſe are ſometimes large, and in one cavity; ſometimes ſmall,

* Job a Meekren has made a very juſt and judicious remark on this ſubject. Fabritius ab Aquapendente had reckoned a collection of fluid, within the tunica albuginea teſtis, among the kinds of hydrocele. This Meekren does not allow: but, having deſcribed the true

ſmall, and in ſeveral diſtinct ones. They are alſo very different in nature, in different caſes; ſometimes ſerous, ſometimes ſanious; ſometimes purulent, ſometimes bloody. Theſe are very apt to impoſe on the inadvertent and injudicious; (eſpecially if they be attended with ſome degree of inflammation in the ſkin;) and to induce an opinion of an abſceſs, or impoſthumation, which may be relieved, or cured, by an opening; but caveat operator. Theſe collections will be found to bear a much ſmaller proportion to the general ſize of the tumor, than they who are not converſant with them are inclined to apprehend; the ſubſidence after the opening has been made, will alſo be much ſmaller than was expected; and, inſtead of relief and eaſe, all the ſymptoms of pain, ſwelling, inflammation, &c. will be increaſed and aggravated: and if the opening be conſiderable, it not infrequently happens, that an ill-natured fungus is thruſt forth; which, by bleeding, gleeting, and being horridly painful, diſappoints the ſurgeon, and renders the ſtate of the patient much more deplorable than it was before: neither is this ſenſation, which is thought like the fluctuation of a fluid within the teſticle, to be at all times depended upon as implying that there is any fluid at all there. The touch, in this caſe, is ſubject to great deception; and I have ſeen a looſened texture of the whole vaſcular ſtructure, or body of the teſticle, produce a ſenſation, ſo like to the fluctuation of a fluid lying deep, as has impoſed on perſons of good judgment, and great caution.

Many of the moſt eſteemed writers on this part of ſurgery, either not being practitioners, or being afraid to differ from thoſe who have writ-

true hydrocele of the vaginal coat, ſpeaks of this collection within the albuginea, as it really is; that is, as a conſequence of the diſeaſed ſtate of the gland. His words are: "Hieronymus Fabritius ab Aquapendente, Part. I. de Operat. Chirurg. cap. 75. aquam "in teſtibus congregari docet eam quæ ex imo ventre eo defluit: at error eſt (meo judi-"cio) magni anatomici. Spatio enim eo, quod eſt inter teſticulum et tunicam, imo in "ſcroto ipſo, aqua ſæpius colligitur: *nunquam in teſtibus ipſis, niſi putreſcant.*"

ten before them, have lazily and ſervilely copied each other, and have thereby fallen into an obſcure jargon concerning this diſeaſe, which, neither themſelves, nor their readers, have underſtood. They have talked of the ſchirrhous teſticle, the caro adnata ad teſtem, and the caro adnata ad ſpermatica vaſa, as ſo many different diſeaſes, requiring different methods of treatment.

The melancholia, the atra bilis, and a certain inexplicable aduſt ſtate of humors, are ſaid to be the cauſes of theſe different appearances; and the fleſhy ſubſtance ariſing from, or adhering to, the ſpermatic veſſels, is ſaid to be more benign, than either the fungus ariſing from the teſticle, or the true ſchirrhus. For the firſt, they have deſcribed an operation, which is coarſe, cruel, painful, and (notwithſtanding all that they have ſaid about it) unſucceſsful; all which they muſt have known, if they had *practiſed* it. I, therefore, am much inclined to believe, that this is one of the many parts of antient ſurgery, which having been deviſed by ſome one bold, hardy operator, and by him deſcribed as practicable, has been related by many of his ſucceſſors, as practiſed. The ſecond, the caro adnata ad teſtem, they allow to be attended with more difficulty, as well as hazard, and ſeldom to be attempted with ſucceſs *.

They,

* "Ramex hæc inter excreſcentias annumerari poteſt, cum fit additamentum ex toto "præternaturale; nec illi inſunt ſigna apoſtematis, ſed tantum ut caro quæ circa ſcrotum "aut epidydimem generari ſolet." ANDREAS a CRUCE.

"Curatioejus eſt, ut incidatur cutis teſticulorum, et excorietur uſque ad ſuperiora; "deinde extrahe didymum et teſticulum, et libera eos ab omni parte ex illa carnoſitate."

BRUNUS.

"Fit etiam hernia quandoque ex carnoſitate quadam præter naturam naſcente juxta "teſticulum; et tunc pellicula inciſa undique debet excoriari; et diſcooperta carnoſitate "illa a corio exteriori uſque, ſuperius *cauterio* abſcindatur." ROLANDUS.

"Cura ejus non poteſt fieri niſi cum manu pellem exteriorem ſcindendo, et carnem "a teſticulis ſcarnando, et incarnatum auferendo." LANFRANC.

"Scinde pellem teſticuli cum raſorio uſque ad teſticulum, et tunc carnoſitatem, quam "invenis, removeas et excarnes totaliter a teſticulo." GUL. e SALICETO.

They, who are under a neceſſity of forming their opinions principally from books, and who have not frequent opportunities of knowing from experience how very little they are (in many caſes) to be depended upon, may be inclined to think, that all theſe diſtinctions really exiſt; and that theſe operations by fire and ſword, by knives and cauteries, ſo exactly deſcribed, muſt be ſometimes neceſſary; but having never ſeen the particular caſes requiring ſuch treatment, have a very imperfect idea, either of them, or of the operations; and are, to the laſt degree, alarmed and intimidated, when any thing, which they think is like to it, occurs to them in practice. To ſuch, it may not be amiſs, to explain this matter, in as few words as I can; begging pardon of the more intelligent reader for the digreſſion.

In

" Notandum eſt in hac operatione num caro concreverit circa tunicas; an circa ipſos " teſtes; numque firmiter an minus firme adhereat partis ſubſtantiæ. Incidendum eſt to- " tum ſcrotum uſque ad carnem coneretam, quæ ſi quidem valenter haud ſit affixa, vel " ſummis digitis, vel manubriolo ſcalpente, a teſte vel tunicis, ſenſim ſit auferenda."

FAB. ab AQUAPEND.

" Caro item ſæpiſſime teſticulis, ut eorum tunicis adnaſcitur, ſeroſus enim humor iſte " nonnunquam acris factus venas capillares, membranaſque leviter erodit. Hinc pars " illa ſanguinis que paulatim exudat: quæque optima et laudabilis eſt, beneficio caloris " innati, in carneam ſubſtantiam concreſcit, &c. reliquum vero ſanguinis quod ſeroſum " eſt, paulatim membranas totumque ſcrotum adeo extendit, ut caro iſta quæ teſticulo " adherit, digitis palpari non poſſit." FABRITIUS HILDANUS.

" Secandum eſt ſcrotum, et detegenda caro, et a teſte deradenda vel a vaſis, &c."

GAB. FALLOPIUS.

The falſe reaſoning, the want of anatomical knowledge, the cruelty, and inutility, of the propoſed operations, and the terrible conſequences which muſt follow from their being put in practice, are too glaring to need any comment; and ſuch as muſt incline every reaſonable man to hope, that theſe authors (and a great multitude of others, who might be named) did in this part of ſurgery, as they have done in many others; that is, copy each other in the precepts relative to the cauſe and treatment of this diſeaſe, but did not put their directions often into practice. The imperfect ſtate of anatomy, in the time of the above-cited writers, may be admitted as an excuſe for them; but even very late ones have fallen into the ſame error.

" In

In the ſhort anatomical account which I have given of theſe parts, I have taken no notice, that the ſpermatic veſſels terminate in the teſticle: and that, after the ſemen has been ſecreted from the blood, it paſſes from that gland into a body which ſeems ſuperadded to, although it be really continuous with it. This body is therefore called the epididymis, and is ſo placed, with regard to the teſtis, that a heedleſs or uninformed obſerver may ſuppoſe, that the ſpermatic veſſels terminate in it; eſpecially, if it be enlarged by diſeaſe. It takes its riſe from the teſticle, by a number of veſſels, called, from their office, vaſa efferentia: theſe ſoon become one tube, which, being convoluted and contorted in a moſt wonderful manner, forms the greater part of the ſaid body; and at laſt, ceaſing to be ſo convoluted, it ends in one firm canal, called the vas deferens; by which, the ſecreted ſemen is conveyed from the teſticle to the veſiculæ ſeminales.

Whoever will attentively conſider the epidydimis in its natural poſition, with regard to the teſticle and the ſpermatic veſſels, will ſee, that

" In the fungous excreſence upon the teſtis, when the ſame is not over-grown, you " are to make way thereto; which is then to be conſumed by eſcharotics, or by the actu- " al cautery." TURNER.

" Si quid vero carnis enatum a teſticulo deprehenditur, quod graviter hominem affligat, " nec diſcuti tamen per adhibita medicamenta convenientia queat, tum ſi teſticulus integer " adhuc eſt, atque illibatus, feliciter ut plurimum ſanari noxa poterit, ipſeque teſticulus " ſervari; dummodo quicquid præter naturam ſuper increvit, *detecto ſcroto*, quam exact- " iſſime ab eo *ſolvatur*, atque reſcindatur."

" Quod ſi autem ipſum teſticulum invaſerit; vel excindi etiam propter nimios crucia- " tus, vel ſimiles alias cauſas, indecore prominentes partes nequeant, neceſſarium utique " erit, vel, univerſum teſticulum, *vel quandam ſaltem ejus partem*, modo jam propoſito " exſcindere." HEISTER.

To ſet aſide the ſtrange diſtinction between the caro enata a teſticulo," and that " quæ " ipſum teſticulum invaſerit;" (a diſtinction taken from books only) I believe, I may venture to ſay, that the Profeſſor never found, that the operations, which he deſcribes and adviſes, were attended with ſucceſs; and, I hope that he has not often ſeen them performed.

that if it be enlarged beyond its proper ſize, it will extend itſelf upward, in ſuch a manner as to ſeem to be cloſely connected with them, and to bear the reſemblance of a diſeaſed body, ſpringing from them.

This is the caſe called the caro adnata ad vaſa ſpermatica; and is really and truly nothing more, than an inlargement of the epidydimis; a circumſtance which occurs not infrequently, but does not imply any malignity, either in the part or in the patient's habit; and can never require ſuch a horrid operation as our forefathers have directed us to perform upon it; nor, indeed, any at all.

The epidydimis is frequently inlarged, in venereal caſes, either ſeparately, as in the remains of a hernia humoralis, or together with the teſticle, in that affection of it, which I have called the venereal ſarcocele; and ſometimes from mere relaxation of its natural texture, without any diſeaſe at all. But in none of theſe can it require, or even admit, any manual operation of any kind. Indeed, whoever will conſider the epididymis, as it really is, as the medium by and through which the ſemen is conveyed from the teſticle to the vas deferens, muſt immediately be ſenſible of the glaring abſurdity of removing any part of it.

The ſchirrhus and cancer do not very often begin in this part; they moſt frequently make the firſt attack on the body of the teſtis: and, though the epididymis is often cancerous, yet, it moſt frequently becomes ſo ſecondarily, or after the teſticle is ſpoiled; ſo that the removal of it, if practicable, could ſerve no good purpoſe: it would not remove the diſeaſe; for that has, before-hand, moſt commonly taken poſſeſſion of the teſticle; and the cutting off any part of a ſchirrhous or cancerous tumor of any kind, is what no man, who has the leaſt knowledge of what he is about, will ever think of.

In ſhort, theſe two caſes, which, by the inattention and miſrepreſentation of our anceſtors, have created ſuch perplexity in the minds

of

of their readers, are either a ſimple inlargement of the epidydimis, without any morbid alteration in its ſtructure; or a diſeaſed (that is a ſchirrhous) ſtate of the ſame part; or elſe, a ſchirrhous or cancerous teſticle, with inequality of ſurface. The firſt of theſe requires no manual operation of any kind; and the two laſt will admit of none: the firſt is no diſeaſe at all; and the two laſt are ſuch diſeaſes, that every attempt made on them, by knife or cauſtic, (unleſs for total extirpation) muſt render them worſe, and more intractable.

The manner of treating a ſarcocele, or hernia carnoſa, depends entirely on the particular nature and ſtate of each individual caſe. In ſome, it will admit of palliation only; in others, the diſeaſe may be eradicated, by the extirpation of the part: ſo that, under the article of method of cure, we have only to conſider, and point out, as clearly as the nature of the diſeaſe will permit, what ſtates and circumſtances, both of it, and of the patient labouring under it, forbid the operation, and what render it adviſable.

On this head, great variety of opinions will be found among writers; ſo great, that a man, who is under a neceſſity of forming his judgment from them, will find himſelf under ſome difficulty how to act; and ſo great, that I cannot help thinking it to be clear, that the majority have not written from practice, but from mere conjecture, or from the works of thoſe who have gone before them.

Some have given it, as their opinion, that while the teſticle is perfectly indolent (let the alteration in its ſtructure, form, or conſiſtence be what it may) it is better to ſuffer it to remain, than to remove it. In ſupport of this opinion, they ſay, that although the diſeaſe has plainly taken poſſeſſion of the part, yet, while it cauſes no pain, the conſtitution receives no damage from it; nor is the health of the patient impaired by it; whereas, by removing the teſticle, the ſame virus may ſeize on ſome part of more conſequence to life. This me-

thod

thod of reaſoning takes for granted two things, which do not appear to be ſtrictly or conſtantly true; viz. that this diſeaſe is never perfectly local; and that a ſchirrhous teſticle, though free from pain, will not in time produce any evil to the general habit of the patient. Others adviſe us to ſtay, until the tumor becomes painful, and manifeſtly increaſes in ſize, or acquires a ſenſible inequality of ſurface; that is (in other words) until it begins to alter from a quiet ſtate, to a malign one: which advice, as well as the preceding, ſuppoſes, that the hazard of the mere operation of caſtration is too great to render it an adviſeable thing, until the patient is preſſed by bad ſymptoms; and that a ſchirrhous teſticle, which has been quiet, and free from pain for ſome time, may be as ſucceſsfully extirpated, after it has become painful, and has acquired a malignant and threatning ſtate, as at any time before ſuch alteration. The latter of theſe will hardly be admitted (I believe) by thoſe, who form their opinions from experience; and with regard to the former, I can, with great truth, affirm, that I never ſaw the mere operation of caſtration, when performed in time, and on a proper ſubject, prove fatal.

Many people have I known, who have lived ſeveral years, their whole lives, perfectly free from diſeaſe, after the removal of quiet, indolent, ſchirrhous teſticles; and ſeveral have I known, who having deferred the operation, until they were urged by pain, increaſe of ſize, and inequality of the tumor, have, from the ſore becoming cancerous, not been able to obtain a cure. That I have ſeen the ſame thing happen, after the removal of a teſticle, circumſtanced in the beſt manner, is beyond all doubt; but not near ſo frequently, as in thoſe caſes, in which the operation has been deferred until the ſymptoms became alarming, and the diſeaſe had changed its appearance, from a benign quiet one, to one that was malign and painful. Indeed, were we capable of knowing, with certainty, which thoſe ſchirrhi were,

that would remain quiet and inoffenſive through life, or for a great length of time, and which would not; we ſhould then be enabled to adviſe or diſſuade the operation, upon much better (that is much ſurer) grounds, than at preſent we are able to do. We have no ſuch degree of knowledge; all our judgment is formed upon the mere recollection of what has happened to others in nearly ſimilar circumſtances; and experience, though the beſt general guide, is, in theſe caſes, more fallacious than in many others.

A few people there certainly have been, who have been ſo fortunate to carry a ſchirrhous teſticle through many years, with little or no pain or trouble: but the number of thoſe, in whom time, (and that frequently a ſhort ſpace) change of conſtitution, external accidental injury, &c. do not make ſuch an alteration in this diſeaſe, as to render the operation leſs likely to be ſucceſsful, than it would have been at firſt, and under more favourable circumſtances, is ſo ſmall, that I think early caſtration (that is, as ſoon as the diſeaſe is fairly formed and characteriſed) may be recommended and practiſed by every honeſt and judicious ſurgeon.*

Indeed,

* Schirrhous and cancerous tumors are found in many parts of the body, as well as in the teſticle; and in all others, as well as in that, bear different characters: that is, ſhow a greater or leſs diſpoſition to malignity; remaining ſometimes of ſmall ſize, and eaſy for many years; at others, increaſing faſt, and ſo producing great pain, and all its bad conſequences.

Of all the kinds of this diſeaſe, thoſe which follow upon ſome external violence (ſuch as blow, bruiſe, &c.) are thought, and ſaid to be, the leaſt; therefore, great regard has always been paid to this diſtinction by writers, and great hopes conceived from this circumſtance by patients. I wiſh I could ſay, that ſuch hopes were always as well founded as they are thought to be: I mean, that experience moſt frequently verified them.

When a ſchirrhus ſeizes a part that has previouſly ſuſtained an injury from without, ſuch probable cauſe is, undoubtedly, a favorable circumſtance; but it does not, by any means, neceſſarily follow from thence, that the conſtitution of ſuch perſon is free from taint.

Indeed, the circumſtances of frequent pain, and a manifeſt tendency to an increaſe of ſize, are by ſome people looked on, as ſuch marks

taint. It is a preſumption, but not a proof: and this preſumption becomes more reaſonable, if the diſeaſed ſtate of the part follows ſuch accidental injury ſoon, than if it appears at a great diſtance of time.

No man will pretend to ſay, that ſuch miſchief has not been done by outward violence, that cancerous diſorders have not followed, in the parts ſo injured, in perſons, who, before ſuch accident, never had any appearance of ſuch diſorder; and who poſſibly might have lived many years, nay, their whole life, without its appearing in ſuch form and manner: but that, previous to ſuch accident, there was no cancerous diſpoſition, or malignity in the habit, is an inference which cannot be admitted.

What diſorders of the joints do we ſee, produced by very ſlight injuries done to them? diſorders which are clearly and plainly ſcrophulous, and which would not have appeared at that time, or in that part, had it not been for ſuch accident: but ſurely no man will from thence conclude, that ſuch people have no ſcrophulous taint in their blood, or glands, previous to ſuch ſtrain or bruiſe. How many internal parts are there for this diſeaſe, as well as ſome others, to make its attack upon; but which, by being out of ſight, and not deemed objects of ſurgery, are not known; and paſs either for other diſeaſes, or for the ſymptoms of other diſeaſes? what tumors of the lumbal glands and meſentery; what obſtructions in all parts of the contents, both of the abdomen and thorax, do we not find, upon examining the dead, whoſe diſorders were very little known or underſtood while they were living; but whoſe prevailing indiſpoſition, whoſe natural dyſcraſia, would, moſt probably, have ſhewn itſelf in ſome more viſible part, if ſuch part had accidentally ſuffered from external violence?

All that we from experience know, and therefore all that we ought honeſtly to ſay on this occaſion, is, that it has very often happened, that where that kind of diſorder, which produces ſchirrhous or cancerous tumors, has been brought into action by external injury, (whether it be in the breaſt, teſticle, or any other part, it matters not;) or when ſuch kind of diſeaſe has ſeized ſuch part, no preceding violence having been offered to it, and has therein occaſioned a fixed but indolent kind of ſwelling, which has either remained a long time of one ſize and ſtate; or, if it has altered, has altered very ſlowly, and given the patient but little uneaſineſs; if ſuch tumor has been ſo ſituated and circumſtanced, that it could ſafely be extirpated, or removed, that ſuch removal, or extirpation, has often cured the preſent evil; and that the patient has remained free from any thing of like ſort, during his or her life.

marks of a malignant diſpoſition, that they have been, by them, reckoned as diſſuaſives from the operation.

But

This is true, and therefore is, and ever will be, a ſufficient reaſon, for preſſing ſuch operation, when all other circumſtances are favorable: that the patient may keep well after it, is by no means improbable; that the ſchirrhus would remain, through life, indolent and inoffenſive, is very improbable. But whoever boldly aſſerts, that ſuch extirpation will always and certainly cure the diſeaſe, is very inexperienced, or is wilfully guilty of a deception (the two diſtinguiſhing marks of a quack, who always promiſes, what he either does not know, or does not believe.)

When a ſchirrhus or cancer is favorably circumſtanced, and ſo ſituated as that it may be extirpated, ſuch extirpation is indeed the only remedy; and that method by which ſuch extirpation can be moſt certainly and expeditiouſly executed, is, beyond all doubt, the beſt.

The two in uſe are, the knife and the cauſtic. The former, in the hand of a ſurgeon who is an anatomiſt, has every advantage which can be deſired or ſuppoſed: it gives leſs pain, is more ſecure, and more expeditious; but it impreſſes on the patient the apprehenſion of an operation, and the fear of an hæmorrhage. The uſe of cauſtic is infinitely more painful, not only in immediate ſenſation, but in duration: it often requires repetion; it is leſs manageable, leſs ſecure; and the great length of time, which the ſeparation of the mortified parts ſometimes takes up, renders it very tedious. But it is attended with two circumſtances, which have greatly contributed to the ſupport of cancer quackery: one is, that it ſpares the patient the horror of an operation; which, though infinitely leſs painful than the effect of the cauſtic, is not believed to be ſo: the other is, that the ragged appearance, which the bottom and ſides of the parts make after having been removed by ſuch application, is ſo unlike to the ſmoothneſs of that which has been removed by inciſion, that ignorant people are eaſily induced to believe, what the deſigning always tell them, viz. that the medicine has taken their diſeaſe out by the roots; and that the ragged parts, which they ſee, are ſuch roots.

It is amazing, what weight this ſingle circumſtance has with many, and even with ſome ſenſible people; few of whom are perſuaded to believe what is as true as any propoſition in Euclid, viz. that a cauſtic of equal ſtrength, applied on any glandular part of any perſon, will always produce exactly the ſame effect, and appearance, as, in this caſe, paſſes with them for the roots or branches of the diſeaſe.

When nurſes and quacks talk of the fibrous roots of a cancer, and of cancerous fermentations, they are excuſable; the one from their ignorance, the other from the nature of

their

But theſe gentlemen carry their fears and apprehenſions much too far the other way. Pain and a quick increaſe of ſize are certainly no favourable ſymptoms; they ſhew a diſpoſition to miſchief, but they are not ſuch poſitive proofs of a cancerous habit, as to render all hope of a cure, from the removal of the diſeaſed part, vain: there are many

their trade; but when they who pretend to ſome kind of medical knowledge uſe this kind of language, it is ſhameful.

If either the fears of the patient, or the particular circumſtances of the part to be removed, render the uſe of cauſtic preferable, or neceſſary, every practitioner is well acquainted with thoſe which are perfectly efficacious; but every practitioner alſo knows, that good reaſons for preferring the uſe of them to the kniſe very ſeldom occur: it is in this as in the attempts toward a radical cure for ruptures, and ſome other parts of ſurgery, we are cenſured where we ought to be applauded, and blamed for thoſe very things, from whence we ought to derive praiſe. We have laid aſide certain methods and proceſſes, becauſe we found them (upon experience) to be painful, hazardous and ineffectual: and theſe very methods, deſtructive and fallible as they are, have given credit and honour to thoſe who have had ignorance and inhumanity enough to revive them.

We are not yet ſo happy, as to be poſſeſſed of any medicine which will cure a cancerous habit: when the conſtitution is thoroughly infected, neither our knives or cauſtics will avail; they can only remove the local miſchief, but can have no effect on the general one in the conſtitution. Whoever ſays otherwiſe, ſays what is not true; and whoever believes otherwiſe, is impoſed upon. When the habit is concerned, as it too frequently is, it muſt be an internal remedy that proves a ſpecific, whenever we are ſo happy as to be bleſſed with the diſcovery. The ſuppoſition, that an eſcharotic can, by deſtroying a particular part, eradicate the diſeaſe from the habit, is (one would be inclined to ſuppoſe) too groſs an abſurdity, for the moſt credulous believer to ſwallow; and yet, it is believed, and truſted to every day. Indeed, it ſometimes happens in the treatment of theſe caſes, that either the arrival of puberty, a favourable turn in a conſtitution, or the renewal of long-obſtructed evacuations (eſpecially the uterine ones) ſhall reſtore the patient to a better ſtate of health, and prevent either the farther progreſs of the diſorder, or any new appearance of it in any other place. In this caſe, if the extirpation was made by an external application, and not by an inſtrument, ſuch application is thought to have wrought the cure, and has all the credit of doing what it really had no ſhare in then, what it never can do, nor have the appearance of doing again, but in the like accidental circumſtances.

many inſtances to the contrary: and though no honeſt or judicious man will venture to promiſe ſucceſs, even in the moſt favourable of theſe caſes, yet it is well known, that they which have had very unpromiſing appearances, not only from the ſtate of the teſticle, but from that of the ſpermatic chord, have ſucceeded often enough, to make the chance of a cure, by the operation, by no means a deſperate one. The ſtate of a man left to his fate in theſe circumſtances, that is, to the fury and progreſs of the diſeaſe, is ſo truly miſerable, that nothing ſhould be left unattempted, which carries with it any probability of being ſerviceable: and a practitioner is vindicable, in preſſing what he has known to be ſucceſsful; though, at the ſame time, he ought to make a guarded kind of prognoſtic.

Upon the whole, I think it may juſtly be ſaid, that the man, who has the misfortune to be afflicted with a truly ſchirrhous teſticle, has very little chance (notwithſtanding all that has been ſaid and written about ſpecifics) to get rid of it by any means, but by extirpation: and all the time the operation is deferred, he carries about him a part not only uſeleſs and burthenſome, but which is every day liable, from many circumſtances (both external and internal) to become worſe, and more unfit for ſuch operation.

While the teſticle is ſmall, and free from acute or frequent pain, the veſſels from which it is dependent are moſt frequently ſoft, and free from diſeaſe; whereas, when the teſtis has been ſuffered to attain a conſiderable ſize, the caſe is frequently otherwiſe: the ſpermatic veſſels are often large and varicoſe; and the cellular membrane inveſting them ſometimes becomes thick, and contracts ſuch connections and adheſions, which, though they may not amount to an abſolute prohibition of the operation, do yet render it tedious, troubleſome, and more hazardous than it would be in other circumſtances. Every addition to the original complaint in the body of the gland is againſt the patient; and

and if any of theſe are the conſequence of not having removed it in time, it will follow, that the ſooner it is removed, the better. If we wait for what ſome call indications of the neceſſity of operating, we ſhall often ſtay until it will do no good. Many a one have I ſeen loſe a very probable chance of a cure by delay: but I do not remember ever to have ſeen a teſticle removed, by a man of judgment, which teſticle did not, upon examination, fully vindicate the extirpation. If we were poſſeſſed of any medicine, either external or internal, which had been known now and then to have diſſolved ſchirrhi, it would always be right to recommend the trial of them previous to an operation; and it would always be right to defer operating until ſuch trial had been made. But the truth is, we know no ſuch medicine. The credulous on the one hand, and the deſigning on the other, have told us many ſtrange ſtories of cures effected by ſuch applications and remedies; and I do moſt ſincerely wiſh, that what each of them have ſaid was true: but repeated, faithful experience has proved that it is not; and that they who have placed their confidence in them, or laid out their money on them, have been diſappointed and cheated.

Some circumſtances there are now and then attending this diſeaſe, which are out of our ſight and out of our knowledge, and which will render all our pains abortive: ſuch are tubercles, indurations, and other diſeaſed appearances in the cellular membrane enveloping the ſpermatic veſſels within the abdomen; ſchirrhous viſcera, &c. If any of theſe can be known, they conſtitute a good reaſon for not attempting the cure by the operation; but the mere poſſibility that ſuch may exiſt, is certainly no reaſon for abſtaining from it: the apparent evil, that is, the diſeaſed teſtis, is certain; the other may or may not be the caſe: the one, if left to itſelf, is moſt likely to deſtroy the patient in a moſt miſerable and tedious manner; and the other, the ſuſpected miſchief, may poſſibly not exiſt.

But

But though the timely and proper removal of a ſchirrhous or cancerous teſticle does frequently ſecure to the patient life, health, and eaſe, which, in ſuch circumſtances, are not attainable by any other means; yet it muſt be remarked, that the improper and untimely performance of the operation is not only not attended with ſuch happy and ſalutary event, but generally brings on high ſymptoms, and quick deſtruction. It, therefore, behoves every practitioner to be perfectly well acquainted, not only with ſuch circumſtances as render caſtration practicable and adviſeable, but with thoſe which prohibit ſuch attempt.

Theſe are of two kinds, and relate either to the general habit of the patient, and the diſorders and indiſpoſitions of ſome of the viſcera, or to the ſtate of the teſticle, and ſpermatic chord.

A pale, ſallow complexion, in thoſe who uſed to look otherwiſe; a wan countenance and loſs of appetite and fleſh, without any acute diſorder; a fever of the hectic kind; and frequent pain in the back and bowels, are, in thoſe, who are afflicted with a ſchirrhous teſticle, ſuch circumſtances as would induce a ſuſpicion of ſome latent miſchief, and incline one to ſuppoſe, that the ſame kind of virus, which had apparently ſpoiled the teſtis, may alſo have exerted its malign influence on ſome of the viſcera: in which caſe, ſucceſs from the mere removal of the teſticle is not to be expected. They, whoſe conſtitutions are ſpoiled by debauchery and intemperance, previous to their being attacked with this diſeaſe, who have hard livers, and anaſarcous limbs, are not proper ſubjects for ſuch an operation. Hard tumors within the abdomen in the regions of the liver, ſpleen, kidnies, or myſentery, implying a diſeaſed ſtate of the ſaid viſcera, are very material objections to the removal of the local evil in the ſcrotum. In ſhort, whenever there are manifeſt appearances or ſymptoms of a truly diſeaſed ſtate of any of the principal viſcera, the ſucceſs of the operation

ration becomes very doubtful; more eſpecially, if ſuch ſymptoms and appearances, upon being properly treated, reſiſt in ſuch manner, as to make it moſt probable, that a cancerous virus is the real cauſe of them. When none of theſe require our attention, the object of conſideration is the teſticle and its ſpermatic veſſels. The ſtate of the mere teſtis can hardly ever be any objection to the operation; the ſole conſideration is the ſpermatic chord: if this be in a natural ſtate, and free from diſeaſe, the operation not only may, but ought to be performed, let the condition of the teſticle be what it may: if the ſpermatic chord be really diſeaſed, the operation ought not to be attempted. For although on the one hand, a probability of ſucceſs will vindicate an attempt, even though it ſhould fail; yet, on the other, where there is no ſuch probability, an operation, though performed in the moſt dextrous manner, will prove only a more ingenious method of tormenting.

This therefore (the ſtate of the ſpermatic chord) is a matter, which may require our moſt ſerious conſideration; ſince, on this it is (when the diſeaſe appears to be local) that we muſt found our judgment; and by this muſt form our reſolution, either to leave a man to the truly miſerable fate of being ſlowly, though certainly, deſtroyed, by a cruelly painful, and frequently very offenſive diſeaſe; or endeavour to ſave, and preſerve him in health and eaſe, by means which have ſo often proved ſucceſsful, as truly to deſerve the appellation of *probable*.

All writers on this ſubject agree in ſaying, that if the ſpermatic proceſs has partaken of the diſeaſed ſtate of the teſticle, that is, has become inlarged, and hardened, and ſuch inlargement and induration extends itſelf quite up to the abdominal muſcle, that the operation of caſtration ought not to be performed, becauſe it not only will prove ſucceſsleſs, but will haſten the death of the patient. And this is, in

 ſome

ſome degree, moſt certainly true; but not without ſome limitation. A truly and abſolutely diſeaſed ſtate of the ſpermatic chord, in any part of it, is certainly a very material objection to the operation, as it moſt commonly proves a bar to the ſucceſs of it: and a morbid ſtate of the ſame chord, quite as high as the abdominal muſcle, that is, of all that part of it which is external to the cavity of the belly, is a juſt and full prohibition againſt ſuch attempt. But on the other hand it muſt be obſerved, that every apparently-morbid alteration of the ſpermatic chord is not really ſuch; and therefore, that every inlargement, induration, fulneſs, &c. which ſeems to alter the ſpermatic veſſels from that ſtate which is called a healthy and natural one, is not to be regarded as a diſeaſe; at leaſt, not as ſuch a diſeaſe as is ſufficient to prohibit the attempt to obtain a cure by extirpation. The difference between theſe, it is the duty of every practitioner to become perfectly acquainted with, as it is from a conſideration of theſe, that he ought to determine, whether he may, with that firmneſs and aſſurance which the probable expectation of ſucceſs will give him, propoſe and adviſe caſtration; or find himſelf obliged in conſcience to diſſuade, or refuſe, the performance of it.

When the ſpermatic veſſels are not only turgid and full, but firm and hard; when the membrane, which inveſts and connects them, has loſt its natural ſoftneſs and cellular texture, and has contracted ſuch a ſtate, and ſuch adheſions, as not only greatly to exceed its natural ſize, but to become unequal, knotty, and painful upon being handled, and this ſtate has poſſeſſed all that part of the chord, which is between the opening in the oblique muſcle and the teſticle, no prudent, judicious, or humane man will attempt the operation; becauſe he will, moſt certainly, not only do no good to his patient, but will bring on ſuch ſymptoms, as will moſt rapidly, as well as painfully deſtroy him. Of this, there are ſo many proofs, that the truth of it is inconteſtible.

In

In ſome modern French books, we have indeed miraculous accounts of operations of this kind, performed by dividing the tendon of the oblique muſcle, by tracing the diſeaſed ſpermatic veſſels within the cavity of the belly, and there making the ligature and exciſion: but theſe are operations which make a figure in books only, and are performed only by viſionary writers; or, if ever they have been practiſed, ſerve to ſhew the raſhneſs and inſenſibility of the operators, much more than their judgment or humanity. Whoever (notwithſtanding theſe tales) performs the operation, in the circumſtances abovementioned, will prove himſelf much more hardy than judicious; and will deſtroy his patient, without having the ſatisfaction of thinking that his attempt, though ſucceſsleſs, was yet vindicable; the only circumſtance, which can, in ſuch events, give comfort to a man, who thinks rightly.

On the other hand, as I have already ſaid, every inlargement of the ſpermatic chord is not of this kind, nor by any means ſufficient to prohibit, or prevent the operation.

Theſe alterations, or inlargements, ariſe from two cauſes, viz. a varicoſe dilatation of the ſpermatic vein, and a collection, or collections, of fluid in the membrane inveſting and inveloping the ſaid veſſels. In the firſt place, as there is no reaſon in nature, why a teſticle, whoſe veſſels have previouſly (for ſome time perhaps) been in a varicoſe ſtate, ſhould not become ſchirrhous; ſo it is alſo clear, that the ſchirrhoſity ſeizing ſuch teſticle will by no means remove, or even leſſen ſuch varicoſe dilatation of the veſſels from which it is dependant; on the contrary, will moſt probably, and indeed does moſt frequently, increaſe ſuch diſtention: but ſuch mere varicoſe inlargement of the veſſels, whether it be previous or conſequential to the morbid ſtate of the teſtis, does not, nor ought to prevent the removal of it, if otherwiſe fit and right. It is indeed an objection to the doctrine of

Mr. Le Dran, and a few other writers, who make no ligature on the chord, and truſt to a ſlight contuſion of it between the finger and thumb for a ſuppreſſion of the hæmorrhage; but is none to the reſt of the operation, as I can from experience teſtify.

In the next place, the diſeaſed ſtate of a truly ſchirrhous teſticle, its weight, and the alteration that muſt be made in the due and proper circulation of the blood, through both it and the veſſels from which it is dependant, may, and do concur in inducing a varicoſe dilatation of the ſpermatic vein, without producing that knotty, morbid alteration and hardneſs, which forbid our attempts. Between theſe, a judicious and experienced examiner will generally be able to diſtinguiſh.

In the former (the truly diſeaſed ſtate) the chord is not only inlarged, but feels unequally hard and knotty; the parts of which it is compoſed are undiſtinguiſhably blended together; it is either immediately painful to the touch, or becomes ſo ſoon after being examined; the patient complains of frequent pains ſhooting up, through his groin, into his back; and from the diſeaſed ſtate of the membrane compoſing the tunica communis, ſuch adheſions, and connexions, are ſometimes contracted, as either fix the proceſs in the groin, or render it difficult to get the finger and thumb quite round it.

In the other, (the mere varicoſe diſtention) the veſſels, though conſiderably inlarged and dilated, are nevertheleſs ſmooth, ſoft, and compreſſible; the whole proceſs is looſe and free, and will eaſily permit the fingers of an examiner to go all round it, and to diſtinguiſh the parts of which it is compoſed; it is not painful to the touch; nor does the examination of it produce, or occaſion, thoſe darting pains, which almoſt always attend handling a proceſs malignantly indurated.

I do not ſay, that the diſtinction between theſe two ſtates is always, and invariably, to be made; but that it often may, I know from repeated

peated experience: and that the operation may ſafely be attempted, and ſucceſsfully be performed, I know from the ſame experience. The ſtate of a man, left to the mercy of a malignant ſchirrhus, is ſo truly deplorable, that we cannot be too attentive, in examining the preciſe nature of each individual caſe; and of embracing every opportunity of giving him that relief, which it may at one time be in our power to give, and which, the lucky opportunity miſſed, it may never be in his power again to receive.

The other circumſtance, which I have mentioned as capable of deceiving an operator, and inducing him to believe that the ſpermatic chord is much more diſeaſed than it really is, and thereby deterring him from the performance of an operation which might prove ſucceſsful, is the extravaſation, or collection of fluid, in the cellular membrane enveloping the ſpermatic veſſels, between the abdominal opening and the teſtis.

In the cellular membrane leading to a diſeaſed teſticle, it is no very uncommon thing, to find collections of extravaſated fluid. Theſe, as they add conſiderably to the bulk, and apparent ſize of the proceſs, make the complaint appear more terrible; and, as I have juſt ſaid, leſs likely to admit relief.

When this extravaſation is general through all the cells of the inveſting membrane, and the ſpermatic veſſels themſelves are hardened, knotty and diſeaſed, the caſe is without remedy; for although a puncture, or an inciſion, will undoubtedly give diſcharge to ſome, or even the greateſt part of the fluid; yet this extravaſation is ſo ſmall, and ſo inſignificant a circumſtance of the diſeaſe, and the parts in this ſtate are ſo little capable of bearing irritation, that an attempt of this kind muſt be ineffectual, and may prove miſchievous.

But, on the other hand, collections of water are ſometimes made in the ſame membrane, from an obſtruction to the proper circulation through

through the numerous lymphatics in the ſpermatic proceſs, while the veſſels themſelves are really not diſeaſed, and therefore very capable of permitting the operation. In this caſe, the fluid is generally in one cyſt, or bag, like to an encyſted hydrocele, and the ſpermatic chord, cyſt and all, are eaſily moveable from ſide to ſide; contrary to the preceding ſtate, in which, the general load in the membrane fixes the whole proceſs, and renders it almoſt immoveable.

A diſcharge of the fluid will, in this caſe, enable the operator to examine the true ſtate of the proceſs, and, as I have twice or thrice ſeen, put it into his power, to free his patient from one of the moſt terrible calamities, which can befal a man.

There is one more circumſtance relative to the ſchirrhous teſticle, which appears to me to be worth attending to, as I cannot help thinking, that it has miſled many, who have not had ſufficient opportunity of comparing theory with practice.

It has been confidently aſſerted, and is generally believed, that a ſchirrhous teſticle never begins in the epidydimis of the ſaid teſticle. The conſequence of this doctrine is, that when a diſeaſe, which affects a teſticle, by inlarging and hardening it, makes its firſt attack on the epidydimis only, ſuch diſeaſe is not allowed to be a ſchirrhus, nor permitted to be treated as ſuch.

That inflammatory kind of tumor, which, in the virulent gonorrhea, ſeizes the teſticle, and is called the hernia humoralis, affects the epidydimis; and, even under the beſt care, ſometimes leaves it too large, and too hard. This is ſaid, never to end in, or produce a ſchirrhus; and, I do not recollect, that I have ever known it do ſo. The diſeaſe, which conſiſts in an induration and inlargement of the whole teſticle, in the more confirmed lues, affects the epidydimis alſo, as well as the glandular part of the teſticle; and I do not remember to have ſeen it, either become cancerous, or not yield to mercury, properly

perly adminiſtered. But that a true ſchirrhus, or cancer, ſometimes makes its firſt attack on the epidydimis, which it alters and ſpoils, before it at all affects the teſticle, is a truth, of which I have not the leaſt doubt. Among others, I formerly believed the contrary doctrine; and, in the firſt edition of this book, have given it as my opinion: but I am, from experience, ſo perfectly convinced of the truth of what I have now aſſerted, that I think myſelf obliged to declare it. The miſtake, I ſuppoſe to have been made by the firſt propagators of this opinion, thus: The hernia humoralis, and the venereal ſarcocele, always inlarge the epidydimis, and generally leave it ſomewhat too hard: both theſe have, by adventrous and unknowing people, been miſtaken for ſchirrhi; but it being found, by experience, that theſe alterations in the epidydimis, were either totally removed by medicine, or, if any part remained, it continued harmleſs through life; an inference was drawn, that, as true ſchirrhi are not often either removed by medicine, or continue harmleſs, therefore, an original affection of the epidydimis could never be a true ſchirrhus; a deduction, which the premiſſes do not, by any means, authorize; and which, I am ſatisfied, is not true.

The operation of caſtration is performed as follows:

The patient being laid on a table of convenient height, the integuments, covering the ſpermatic veſſels in the groin, are to be divided. This inciſion ſhould be begun, as nearly as can be, oppoſite to the opening in the abdominal muſcle, and ſhould be continued a good way down the ſcrotum.

The manner of beginning this inciſion is differently deſcribed by writers; ſome of them adviſing that the ſkin be held up by an aſſiſtant; others that the knife be uſed perpendicularly, in this as in other parts; it is indeed a matter of no importance at all, either to patient or ſurgeon, and therefore may very ſafely be left to the choice of the latter;

latter; but the length of the diviſion is of conſequence to both. A ſmall wound will indeed ſerve to lay bare the ſpermatic chord, but it will not permit the operator to do what is neceſſary afterward, with dexterity or facility: a ſmall wound gives as much pain in the infliction, as a large one; and, as the ſcrotum muſt, firſt or laſt, be divided nearly to the bottom, it had better be done at firſt, on every account. The ſpermatic chord, thus laid bare, is to be freed from its ſurrounding membranous connections; and then the operator, with his finger and thumb ſeparating the blood-veſſels from the vas deferens, muſt paſs a needle, armed with a ligature, between them; and, having tied the former only, muſt cut through or divide the whole chord, at a quarter or half an inch diſtance from the ſaid ligature, according as the ſtate of the proceſs and teſticle will admit. This done; he is then (with the ſame knife, with which he has performed the former part of the operation) to diſſect the teſticle out from its connection with the ſcrotum: the looſe texture of the dartos, the previous ſeparation of the teſticle from the ſpermatic veſſels, and the help of an aſſiſtant to hold up the lips of the wound, will enable him to do this with very little pain to the patient, and great facility to himſelf.*

If any conſiderable artery bleeds, either in the ſcrotum or in the dartos, it muſt be reſtrained by ligature; and, when that is done, the void ſpace, in which the teſticle was, is to be very *lightly* filled with ſoft, dry lint; which lint ſhould be ſuffered to remain, until it be perfectly looſened by the ſuppuration from every part of the ſore: if it be removed ſooner, it muſt be done by force; in which caſe, it will give

* This circumſtance of cutting off the teſticle, before it be diſſected out from the ſcrotum, immediately after the ligature has been made, is of more conſequence to the patient's eaſe, as well as to the facility and expedition of the operation, than they, who have not tried it are aware of.

give unneceſſary pain, and leave a crude, undigeſted ſore; if it be not removed till quite looſe, it will give no pain, and the ſore will be found clean, and well digeſted, and requiring no other dreſſing afterward than mere dry lint; which, from this time, ſhould be applied in ſuch quantity and manner, as to give nature an opportunity of contracting and healing the wound as faſt as ſhe can; in both which, ſhe may be conſiderably aſſiſted by the judicious exhibition of the bark.

I am very ſenſible, that, in the above direction for the performance of the operation of caſtration, I have differed from the doctrine of ſome very eminent modern practitioners; and, particularly, from Mr. Le Dran.

No man thinks more highly of Mr. Le Dran's abilities, than I do; but, in theſe matters, every one muſt take the liberty of judging for himſelf; and, I cannot help thinking, that I have good reaſon for my opinion.

Mr. Le Dran, having divided the integuments in the groin and ſcrotum, ſeparates the teſticle from the ſurrounding membrane, with his fingers, and with ſciſſars. This method is rather coarſe, is unneceſſarily painful, and does, what muſt for ever be wrong, multiplies the inſtruments to be uſed, without any neceſſity. The knife, in the hands of any man at all accuſtomed to the uſe of one, will execute the whole, with more apparent dexterity, with leſs pain, and much greater expedition.*

* "Je ſens le ſcrotum juſqu' au deſſous du teſticule malade, et avec mes doigts, je "detache le teſticule d'avec le tiſſu cellulaire, qui le tient attaché dans le ſcrotum. Si "quelque portion membraneuſe a de la peine a ſe detacher, je la coupe avec des *ciſeaux.*" Mr. De Garengeot divides the whole ſcrotum with ſciſſars; and I cannot ſay, that I have not ſeen it done in London; but it is a tedious, coarſe, cruel, and very unhandy method

I have, without heſitation, directed the ſpermatic chord to be tied. Mr. Le Dran's advice is different. He adviſes, that a ligature be paſſed underneath it; and left there to be tied, or not, as occaſion may require.

He then takes the extremity of the latter between his finger and thumb; and, by rubbing, pinching, or bruiſing, produces a degree of contuſion, ſufficient (as he thinks) to prevent, in general, any hæmorrhage; and, having ſo done, he cuts off the teſticle from the ſaid chord, immediately below the bruiſed part, leaving (as I ſaid before) the ligature ready to be tied, if neceſſary.*

This method, of firſt bruiſing, and then cutting off the ſpermatic chord, without making a ligature on it, is alſo preſcribed and practiſed by ſome gentlemen of eminence here; and, I make not the leaſt doubt, that, both with theſe gentlemen, and with Mr. Le Dran, it may have been ſucceſsful: but, as I have ſeen three people loſe a very alarming quantity of blood, and one very nearly his life, under it; and as, in the many times which I have performed this operation, I never ſaw the leaſt inconvenience ariſe from the ligature, I cannot approve the omiſſion of it.

Mr.

method of doing it. "Cette premiere inciſion faite, l'operateur pouſſera de force, le "doigt indice, ou le grand doigt ſous la peau, dans les cellules graiſſeuſes, afin d'entrer "dans le ſcrotum, et il aggrandira ſon inciſion en coupant, ſur ſon doigt avec des ciſe-"aux mouſſes la peau, qu'il aura ſeparée des graiſſes, et il ouvrira ainſi tout le ſcrotum."

GARENGEOT, OPERAT. CHIR.

* "Il n'y a que l'artere qui m'intereſſe, parce qu'il n'y a qu'elle, qui puiſſe donner "du ſang apres que j'aurai coupé le cordon. Je la prends entre deux doigts a l'endroit, "ou elle paſſe ſur l'os pubis, et avec elle les veines qui l'entourent; puis je paſſe entre "ces vaiſſeaux et le canal deferent, que l'on diſtingue ſous le doigt, a ſa dureté, une "aiguille enfilée de deux brins de fil ciré. J'ote l'aiguille, et je laiſſe les fils, pour faire "la ligature au cas qu'elle devienne neceſſaire. Je prends auſſi tout les vaiſſeaux plus bas "que l'os pubis, et je le froiſſe entre mes doigts, pour y faire une eſpece de contuſion; "puis je coupe le cordon un peu, au deſſous de cette endroit froiſſe." M. LE DRAN.

Mr. Le Dran himſelf, not only ſeems to be apprehenſive, of what *may* be the conſequence, by his paſſing a ligature, and leaving it ready to be tied, and by the very good reaſon which he gives for not cutting off the ſpermatic chord (as moſt of his countrymen adviſe) cloſe to the opening in the tendon of the oblique muſcle; but alſo, in the ſame paragraph, acknowledges, that a fatal hæmorrhage has been the conſequence of the ligature having ſlipped off, after it has been made.*

In the caſe of a perfectly ſound and unaltered ſpermatic chord, in which the veſſels are not become varicoſe, and the operator can make his diviſion of them as low as he pleaſes, this froiſſement, this contuſion may be ſufficient to prevent an hæmorrhage; but in caſes, where the ſpermatic chord is inlarged, Mr. Le Dran himſelf does not think it ſafe to truſt to it. And that the veſſels, from which a ſchirrhous teſticle

* "On demandera, pourquoi je ne fais pas la ligature du cordon immediatement au "deſſous de l'anneau, comme les auteurs le preſcrivent. Je reponds, que ſi la ligature "s'echappe, on ne peut plus lier l'artere, qui ſe retire au deſſus de l'anneau, ou elle peut "donner du ſang dans le tiſſu cellulaire, du peritoine, et faire *perir le malade, comme l'on "a vu arriver.*" LE DRAN.

"Si le cordon ſpermatique eſt gonflé juſqu' aupres de l'anneau, on ne peut ſuivre cette "methode; et il faut *abſolument* faire la ligature du cordon, immediatement au deſſous "de l'anneau." The remainder of this paragraph does indeed ſeem a kind of contradiction of the preceding. "S'il eſt tres gonflé meme un plus haut que l'anneau, et qu'on "ne puiſſe ſe diſpenſer de faire l'operation, il n'y a point de ligature a faire; il faut fen"dre un peu l'anneau, puis couper le cordon, et l'artere ne donnera pas de ſang." Set aſide all conſideration of the propriety, or impropriety, of performing the operation, when the ſpermatic chord is diſeaſed above the ring (as it is called) what can be the reaſon, why the artery ſhould not be expected to bleed, after being divided within the abdomen; when the ſame gentleman allows it to have produced a fatal hæmorrhage, upon retiring into that cavity, or into the cellular membrane of the peritoneum, after having been cut off without the ſaid ring.

ſticle is dependent, may be conſiderably inlarged, and diſtended, and that pretty high, and yet not ſo diſeaſed as to render the operation unadviſeable or unſucceſsful, I have more than once or twice ſeen. The compreſſion which may be made, of the extremity of the divided chord againſt the os pubis, on which ſome ſtreſs ſeems to be laid, will, whether it be made by the finger, or by compreſs and bandage, prove more troubleſome to the patient, than the very momentary pain of the ligature.

The laſt circumſtance, in which I have ventured to differ from the commonly-preſcribed rules, is, that I have not adviſed the removal of any part of the ſcrotum.*

My reaſon is, that I never found it neceſſary in any caſe, when the ſcrotum was not adherent to the teſticle.

Let the ſize of the ſchirrhus be what it may, the ſcrotum will corrugate to its natural form, when the wound is healed; and if in the operation it fairly be divided to the bottom, will neither lodge matter during the cure, nor produce any inconvenience afterward.

When it is adherent to the teſticle, and the cellular ſtructure of the dartos is thereby deſtroyed, all ſuch adherent part ſhould certainly be removed; not only becauſe it is diſeaſed, but becauſe it will give the patient a great deal of unneceſſary pain to diſſect it: but then it ſhould always be removed along with the teſticle, in the manner directed by Mr. Samuel Sharpe, and not be diſſected off firſt, and removed afterwards. By

* "Si quelque portion membraneuſe a de la peine a ſe detacher, je la coupe, avec des "ciſeaux; et *quand le teſticule eſt ote*, j'enleve une partie de la peau du ſcrotum, ſi cette "peau s'eſt trop etendue par le volume de la tumeur." LE DRAN.

The ſame direction is given by Laur. Heiſter. "Cutis ſcroti quæ *exempto teſticulo* ſuper "vacanea ut reſecari forfice debet." By which means (that is, by not removing the ſkin along with the teſticle, but afterward) the patient ſuffers almoſt as much pain, as the whole operation, properly performed, would occaſion; and that without any neceſſity.

By the latter method, the patient's pain is increaſed, prolonged, and even renewed without the leaſt neceſſity.

In every operation, in which a conſiderable portion of ſkin is to be divided, and particularly in this, and in the amputation of womens' breaſts, it ſhould always be remembered, that, as the diviſion of the ſkin (the general organ of ſenſation) is the moſt acute and painful part of what is done by the knife, it cannot be done too quick, and ſhould always be done at once: the ſcrotum ſhould always be divided to the bottom, and the circular inciſion in the ſkin of a breaſt always made quite round, before any thing elſe be thought of. If this be not executed properly, and perfectly, the operation will be attended with a great deal of pain which might be avoided, and the operator will be juſtly blameable.

Before I take my leave of this operation, I think it right to give the young practitioner a caution, viz. that if the tumor be of a pyriform figure, perfectly ſmooth, and equal in its ſurface, and free from pain, notwithſtanding the degree of hardneſs may be great, and he may, in his own opinion, be clear that the tumor is not produced by water, but is a true ſchirrhus, I would adviſe him, immediately previous to the operation, to pierce the anterior part with a trochar, in order to be certain. My reaſon for giving this advice is, that I was once ſo deceived by every apparent circumſtance of a true, equal, indolent ſchirrhus, that I removed a teſticle, which proved, upon examination, to be ſo little diſeaſed, that, had I pierced it with a trochar previous to the operation, I could, and certainly ſhould, have preſerved it.

Having, in the immediately preceding pages, given my opinion very explicitly concerning the expediency and propriety of removing, by the operation of caſtration, a ſchirrhous teſticle, when fairly characteriſed, and properly circumſtanced, it cannot be neceſſary to relate

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any ſuch caſes. Every man, who is at all converſant with this kind of buſineſs, knows, that the operation on proper ſubjects, and in proper inſtances, is very frequently ſucceſsful; and that many people have been, by it, reſcued from immediately impending miſery, and have paſſed many years in health and eaſe, and in a ſtate to propagate their ſpecies.

Particular accounts of ſuch, would appear like mere boaſtings of ſucceſs.

Thoſe, therefore, which follow, are ſelected, either becauſe the fortunate event was not very probable, and they may therefore ſerve to prove, that we ſhould not too haſtily or inadvertently deſpair:

Or, becauſe their true nature was miſtaken; and, therefore, they were improperly treated:

Or, that they were attended with circumſtances not to be foreſeen or prevented:

Or, that the caſe was too long neglected, and the operation too long deferred; or performed when ſucceſs from it was not at all likely:

Or, that they were combined with other complaints, either general, or local; by which the beſt-calculated attempts muſt be fruſtrated:

Or, that they contain ſomething in their nature which appears to be ſingular. From each, or all of which, I apprehend, the practitioner may reap full as much, if not more, beneficial inſtruction, than from the moſt pompous hiſtories of ſucceſs.

CASE XXXIX.

A MAN, about forty-ſeven years old, who had been, for the ſpace of three or four years, afflicted with a truly ſchirrhous teſticle, applied to me. He had been, more than once, during that time,

time, adviſed to part with it, but was afraid of the operation. He was now alarmed by an alteration which it had lately undergone; and from ſome circumſtances in his general health which were new. The tumor, from its firſt appearance, had been indolent and equal, the ſpermatic chord in a natural ſtate, and he had no other complaints of any kind. The teſticle was now very unequal in its ſurface; it had increaſed conſiderably within the laſt three months; and the ſpermatic chord was inlarged, (that is) become varicoſe, more than half way from the teſticle to the groin. He had alſo, a cholicky diſorder, which recurred frequently without any purging.

The caſe was unfavorable; and there appeared to me to be no chance, but from caſtration: the ſtate of the ſpermatic veſſels rendered that dubious; but the improbability of the diſeaſe remaining in its preſent ſtate, made it ſtill worth embracing. The general ſtate of the patient's health, was alſo an alarming circumſtance; but neither could that be amended, while the local diſeaſe remained.

Having apprized him of all theſe circumſtances, he willingly ſubmitted to the operation; which was performed the next day. The ſtate of the proceſs juſt admitted of making the ligature between the inlarged part and the abdominal muſcle. Nothing particular attended the cure: the ſore healed very kindly, and the man has enjoyed a good ſtate of health ever ſince: which is now, between four and five years.

CASE XL.

A Gentleman from America applied to me on account of a complaint in one of his teſticles. It had, while he was abroad, been ſuppoſed to be, and had been treated as, venereal; by which means,

means, what was, at firſt, a ſimple, equal, indolent ſchirrhus, with a ſpermatic chord unaltered from a natural ſtate, was, when I ſaw it, unequal, at times painful, and dependent from ſpermatic veſſels conſiderably inlarged and ſwollen, though ſtill ſoft, and free from knot or induration. He was, otherwiſe, in perfect health, his age thirty-three, and his conſtitution unhurt by debauchery or intemperance.

With regard to the teſticle, there could be no doubt, either of the nature of the diſeaſe, or the propriety of its being removed; but the ſtate of the ſpermatic veſſels was ſuch, as made the proſpect of ſucceſs, from caſtration, very uncertain. Two or three conſultations were had; the reſult of all which were nearly the ſame, that is, the ſurgeons were very apprehenſive of the operation, from the ſtate of the chord, and therefore would not preſs it; and the phyſicians preſcribed internal remedies; and, among theſe the cicuta, which luckily happened to diſagree ſo much with the patient, that he would not go on with it: I ſay luckily, becauſe it thereby prevented the loſs of more time in the uſe of it.

The patient was ſingle, a ſenſible man, and had a great deal of courage and reſolution in his natural conſtitution.

Having maturely weighed all that had been ſaid to him, and finding that no relief was likely to accrue from medicine, and that his diſeaſe was as little likely to ſtand ſtill, he determined rather to take the chance which the operation would give him, either of ſudden deſtruction, or a cure, than live in that ſtate of anxiety, which muſt ariſe from a conſtant meditation on the nature of his diſeaſe.

The operation was performed; and, in the execution of it, I was particularly attentive to the ſtate of the veſſels. The whole proceſs was, I may venture to ſay, full double the ſize it ought to be, and the veins very tortuous, by their being diſtended; but there was no induration, nor any inequality, ſave that proceeding from the varicoſe ſtate of them.

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When the teſticle was removed, I examined that alſo very carefully. The cavity of the tunica vaginalis was, in a great meaſure, aboliſhed, by an almoſt general adheſion of that membrane with the albuginea; the epidydimis was tolerably ſound, but the whole compages of the teſtis hard, and diſeaſed: and, in the very center of it was a putrid ſlough, and a very ſmall quantity of ill-coloured ſanies.

It is now above five years ſince the operation. The patient has enjoyed perfect health ever ſince, and finds no one inconvenience from the loſs of the part.

In theſe two caſes, the event was fortunate beyond expectation. In ſuch circumſtances, every thing is to be feared: the operation is ſeldom adviſable, becauſe ſeldom ſucceſsful. However, they may ſtand as inſtances to prove, that, where there is even a ſmall foundation for hope, it is better to embrace ſuch opportunity, than to leave the patient to his fate. Neither himſelf, nor his friends, ſhould, in ſuch caſe, be flattered, or deceived: but the uncertainty ſhould be laid before them, and the operation ſhould be their own choice.

CASE XLI.

A Young man, about twenty-four years old, deſired my opinion concerning a teſticle, which was beginning to inlarge, and was already become very hard.

The account he gave was, as follows:

That, about ſeven or eight months before, he had a common hernia humoralis, in conſequence of the ſuppreſſion of a gonorrhea by hard riding. That the inflammatory ſymptoms were ſoon removed by reſt, evacuation, and proper application; but that neither the teſticle, nor the epidydimis, had ever returned to their natural ſize. That the

ſurgeon, whoſe care he had been under, had, ſince the inflammation was gone off, given him a conſiderable quantity of mercurial medicine internally, and had rubbed on a good deal of the ointment externally; by which his mouth had been made ſore; and that he had alſo taken two or three mercurial vomits.

The tumor was perfectly indolent, even upon being handled; it had a ſtony, incompreſſible kind of hardneſs, and the ſpermatic veſſels were in a ſound, natural ſtate.

I told him, that whatever might have given riſe to his diſeaſe, it was my opinion, that it was a true ſchirrhus; that it would never be cured by medicine; that, although it was quiet, and free from pain now, no man would pretend to ſay how long it might continue ſo; and that I ſhould, by all means, adviſe him to part with it in its preſent ſtate, rather than ſtay till ſuch alteration ſhould be made in it, as tho' it might induce him to comply, might render the operation unſucceſsful. He diſapproved my advice, and I ſaw no more of him for near four months; at the end of which time, he called upon me again.

His teſticle was a good deal increaſed in ſize, but the ſpermatic chord ſtill unaffected.

I repeated my former advice, and he again refuſed to comply.

At the diſtance of two months from this time, I ſaw him again. His teſticle was ſtill more inlarged, and the cavity of the tunica vaginalis palpably contained a fluid. He ſaid, he had ſhowed it to two other ſurgeons; both of whom had promiſed him much relief, if not a cure, by letting out that water, which, they told him, made the principal part of his diſeaſe. I anſwered, that I had no manner of doubt that there was a fluid; but that I apprehended it to be much leſs in quantity than either he, or they who had promiſed a cure by letting it out, took it to be: that it appeared to me to make ſo ſmall a part of the ſwelling, that I was ſure, that the decreaſe of ſize, upon

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its diſcharge, would bear no proportion to his expectation; that this fluid made no part of the original diſeaſe, but was an accidental conſequence: that an opening made into a teſticle ſo circumſtanced might excite very diſagreeable ſymptoms, from which he was at preſent free; and that my opinion was ſtill, that it ought to be totally removed, or not meddled with.

He left me, with much diſſatisfaction. He ſaid, that I was too tenacious of my own opinion; and too regardleſs of that of others. But I had ſeen too many of theſe caſes to be in any doubt concerning its nature; and I knew the people, under whoſe direction he then was, too well, to ſuppoſe, either that they knew any thing of the matter, or that they would leave any thing unattempted, while he had either credulity or money. Soon after this, I heard, that he had ſubmitted to have a puncture made, by which a very ſmall quantity of bloody ſerum was diſcharged; but the ſize of the tumor ſo little leſſened, that his operator would fain have thruſt a lancet in again, and deeper; but this the patient would not permit.

Being vexed at what had happened, he came not again to me, till at the diſtance of near two months more. He was now in a very different ſtate. His complexion was wan and pale, his fleſh and appetite gone, his teſticle very large, unequal, and painful, and the ſpermatic chord diſeaſed quite up to his groin. I was very ſorry to be obliged to tell him, that I could do him no good; and that the operation was by no means adviſeable.

He now, of courſe, fell into the hands of thoſe who only want a little ready money; and having tried two or three of theſe, he was adviſed to take the cicuta; which he did for ſome time, and in large doſes, but (as uſual) without any real, or permanent good effect.

His ſtate, ſoon after this, became truly deplorable; his teſticle was of an amazing ſize; the ſpermatic chord, quite up to his belly, ſo

large as hardly to be capable of being graſped by the hand; a very large, hard tumor within that ſide of the belly; his pain acute and conſtant; and his fleſh, ſtrength and appetite, totally gone.

In theſe circumſtances, a believer in the omnipotence of the ſublimate ſolution, preſcribed it for him: from which he received the advantage of having his death haſtened.

CASE XLII.

A MAN, about thirty, of a full plethoric habit, ſhewed me a tumor in the ſpermatic proceſs, about the midway between the groin and teſticle: it was hard, circumſcribed, indolent when not meddled with, but painful for a long time after having been handled, and the pain of ſuch kind, as to indicate the diſeaſe not to have a very benign character: the teſticle was perfectly free.

I adviſed the loſing ſome blood, gentle evacuation by ſtool, the uſe of a ſuſpenſory to take off the weight, and deſired the patient to let me ſee him again in about ten days. At the diſtance of ſomewhat more than a month, he came to me again; and told me, that from me he had gone to a rupture-doctor, who put a truſs on him, and giving him an external application, bad him come to him again in a week; that the preſſure of the truſs, joined to the irritating quality of the ointment, greatly increaſed the pain and the ſwelling: that his doctor then applied an adheſive plaſter; and when he had worn that a few days, he thruſt a lancet into the body of the tumor; that nothing followed the lancet but blood; that he inlarged the opening, and filled it with lint; and that, for ſeveral days after, he had dreſſed the ſore with red powder (precipitate). He had now as truly malignant a cancerous ſore, as I ever ſaw; and all the ſpermatic proceſs above it was ſo diſeaſed, as to prohibit all thought of an operation. Nothing pal-

palliated the fury, with which it proceeded; he lived ſeveral months in great and conſtant pain, having a large hard body within the belly (on that ſide) extending from the groin quite up to the region of the kidney; and which, I make no doubt, conſiſted of the diſeaſed ſpermatic veſſels.

CASE XLIII.

A MAN, about forty-eight years old, who lived at ſome conſiderable diſtance from London, perceived one of his teſticles becoming hard; larger in ſize than it uſed to be; and when he was on horſeback, ſomewhat painful.

Having been ſeveral times clapped, and twice confined with a hernia humoralis, he thought that this ſwelling was of the ſame kind; and applied to the apothecary of the town where he lived; who, not being much accuſtomed to ſurgery, and being miſled by the patient's opinion and account, looked on it in the ſame light, and gave him ſeveral doſes of calomel: theſe not ſucceeding to his wiſh, he confined the patient to his bed, applied a pultice to the ſcrotum, and vomited him twice or thrice, with the mercurius emet. flavus. By this proceſs the man became feveriſh; loſt his appetite, ſleep, and fleſh; and the teſticle increaſed, both in ſize and hardneſs.

I was now conſulted by letter, and gave my opinion, that the caſe was not venereal; that mercurial medicines, or whatever was likely to increaſe the circulation, were wrong, and would be found prejudicial; that whatever might become neceſſary hereafter, the preſent intentions ought to be, to procure eaſe; to remove the fever, to keep the body (which had always been coſtive) gently open, and to acquire ſtrength by the adminiſtration of ſoft, light nouriſhment; and I recommended the decoct. ſarſaparillæ, with milk, for his common drink.

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In another letter, which I received at about three weeks diſtance from the firſt, my opinion was aſked concerning the cicuta: to which, I replied, that in ſchirrhous and cancerous caſes, (one of which I took this to be) I had never yet ſeen it do any good, though taken for a conſiderable time, and in large doſes; but, on the other hand, as I had never ſeen it do any harm, I could have no objection to its being tried.

In about two months, or a little more, I had another letter, giving me an account, that the cicuta had been taken freely, and had alſo been conſtantly applied as a cataplaſm; that, in about a month after its firſt application, the pains, both in the part and in the patient's back, were remarkably increaſed; that he, now and then, complained of being chilly; and that there had been, from about that time, a palpable fluctuation of a fluid, near to the ſurface of the tumor; that this fluid had been let out by the point of a lancet, and proved to be only a ſmall quantity of a bloody ſerum; that, from the time this opening had been made, the pain, as well as the ſize, of the tumor had increaſed; that, by continuing the cicuta pultice, with the addition of ſome Burgundy pitch, a collection of matter, or impoſtumation, was now produced, plainly to be felt, though deep in the body of the teſticle: and I was deſired to ſay, what I thought would be the propereſt manner of giving diſcharge to it.

I returned anſwer, that it was a very diſagreeable thing, to be obliged to give a poſitive opinion on a caſe by relation only; and that from thoſe, who, I was ſure, thought not of it as I did. That, as it was by no means unlikely that I might be miſtaken, I deſired, that what I ſhould now ſay, might not be underſtood, or applied to any other caſe, than what *I took this to be*; that I took it to be a ſchirrhus, which was becoming cancerous apace, and would, very ſoon, ſhow more of its malignant diſpoſition; eſpecially, if irritated. That the fluid,

fluid, which had been let out, was nothing more than the water of the tunica vaginalis; whoſe abſorption was prevented; and whoſe color was produced by the diſeaſed ſtate of the teſticle. That I ſhould not have adviſed the letting it out at all; much leſs, in that ſmall quantity. That it was my opinion, that the fluid, which was now ſuppoſed to be felt to fluctuate deep in the body of the teſticle, was, by no means, matter, or the effect of a kindly ſuppuration; but a malignant ſanies, the conſequence of the very diſeaſed ſtate of the teſtis. That I did verily believe they would find, that the quantity of it bore ſmall proportion to the ſize of the general tumor. That the letting it out would, more probably, occaſion an aggravation than an alleviation of ſymptoms, and render the diſeaſe ſtill more painful and more hazardous than it was already. And that I ſhould not be ſurpriſed to hear, that there was no fluid at all.'

To this I received a ſhort reply, ſignifying, that it was apprehended I had miſtaken the caſe. That another gentleman in London had been conſulted; who (from the account given of the ſtate of the ſpermatic chord, of the preceding herniæ humorales, and, moſt probably, from a miſrepreſentation of the caſe) had adviſed the making an opening by knife; which had been done: but the writer of the letter did not ſay a word, about what was let out.

I heard no more of the caſe, or patient, for near another month; and then was ſent for, one evening, to an inn in this town, where I found him in a ſituation truly deplorable. The teſticle was amazingly large, and one half of it covered by a prodigious fungus, which was intolerably painful, gleeted largely, and, at times, bled profuſely; the ſpermatic proceſs was alſo very large, and a tumor plainly to be felt within the belly, cauſed by the diſeaſed ſtate of the ſeminal veſſels. The man's ſtrength and fleſh were exhauſted; in ſhort he was dying, and did not live, above a week or ten days, from this time.

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I believe, it muſt be unneceſſary for me to obſerve, that the miſconception of the nature, and the method of treating, the three preceding caſes, had no ſmall ſhare in contributing to the ſufferings of the patients, and to the fatality of their events. I believe alſo, that moſt practitioners, who have been converſant with this kind of buſineſs, will be of opinion, that the operation, performed in due time, would certainly have contributed to the eaſe, and perhaps to the preſervation of them.

A cancerous diſpoſition in the habit will, certainly, render a patient liable to be deſtroyed, by the diſeaſed ſtate of parts out of our reach; and thereby render the operation, although performed in due time, in the beſt manner, and under the moſt favourable apparent circumſtances, unſucceſsful: but as this very often cannot be foreſeen, or foreknown, ſurely, it muſt be very wrong, to omit doing what may preſerve health and life, only becauſe it may alſo happen, that it may do neither. In all theſe caſes, a guarded prognoſtic ſhould be made; and it ſhould be conſidered, that, though we are ſometimes deceived, and fruſtrated, by ſiniſter events; yet, on the other hand, it happens, and that not infrequently, that caſes, which have even an unfavourable and threatning aſpect at firſt, come to a very happy iſſue.

CASE XLIV.

A Man, about fifty years old, deſired my advice, concerning a diſeaſed teſticle. It was about the ſize of a ſmall pomegranate, very hard, perfectly free from pain, and the ſpermatic proceſs free from all appearance of diſeaſe. Caſtration, he ſaid, he was determined not to ſubmit to; and only wanted to know, whether I could

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put him into any other method of getting rid of his diſeaſe. I gave him my opinion very freely, on the great improbability of his being ſerved by any other means: and, tho' I did, in ſome degree, adviſe him to ſubmit to the operation, yet there were ſome circumſtances in his general health, which induced me not to preſs it; and made me rather pleaſed, that he was previouſly determined againſt it. He had a very ſallow, diſeaſed complexion, a general want of muſcular fleſh, and firmneſs; a very frequent cholic, ſometimes attended with a threatning diarrhœa, and ſometimes with an obſtinate conſtipation. In the ſpace of two or three years, he took a great variety of medicines; and ſaw a great number of practitioners, both regular and irregular, but found no benefit; neither did the teſticle in all that ſpace of time ſuffer any material alteration, or the proceſs become at all affected. He died of an obſtinate and painful dyſentery: and when he was opened, his myſentery was found full of large, hard, ſchirrhous knots; all the lymphatic glands about the receptaculum chyli, and beginning of the thoracic duct, remarkably diſeaſed; and the liver much inlarged, and hardned.

The want of an healthy appearance, the pains, and other complaints which attended the man, might have been owing to cauſes independant of his ſchirrhous teſticle; and upon ſuch ſuppoſition, the removal of the ſaid teſticle by the operation might have been vindicable; but if it had been done, it ſhould have been, under a very guarded, and doubtful prognoſtic.

CASE XLV.

A Man about fifty, ſhewed me a large, diſeaſed teſticle, which he ſaid had been gradually, for near four years, getting to that ſize and ſtate; and was produced, as he thought, by the kick of a child.

The ſurgeon who attended his family had often ſeen it, while it was ſmall, equal, and free from pain; and had as often preſſed him to part with it; but while it was eaſy, he would never think of it.

It was now large, and unequally hard; it had, in ſome parts of it, a quantity of fluid, in others none; it was very painful to the touch; it gave him great uneaſineſs in his back, from its weight, and even while it was ſuſpended, or he was in bed, he had ſuch and ſo frequent darting pains in it, as to render him very unhappy, and to deprive him very much of his natural reſt. The ſpermatic chord was perfectly free; but the frequency of his pain, and the diſturbance of his ſleep, gave him a very unhealthy appearance. I told him, that I thought he had miſſed the moſt favourable opportunity, by not ſubmitting to the operation while the teſticle was ſmall, ſmooth, and indolent; that ſome circumſtances in his general ſtate and habit were unfavourable; but ſtill, as the ſpermatic proceſs was free, and as there was no great probability that the teſticle would ever again be eaſy, or ceaſe to increaſe in ſize until the ſpermatics ſhould become diſeaſed alſo, I thought it was better to take the chance of the operation, than ſubmit to that certain miſery which muſt attend the farther progreſs of the diſeaſe.

The patient conſented; the operation was performed; and every thing went on in the moſt favourable manner, till the ſore was reduced to the ſize of a ſixpence: he was then ſeized with a pain in his belly, the ſore changed its aſpect, and from appearing to be almoſt healed,

healed, it fretted, became foul, ſpongy, and ſpread ſo conſiderably, that, in a fortnight's time, it was as broad as a hand; it bled frequently, gleeted largely, was extremely painful, and very offenſive; nothing was done, had any good effect on it; and, having languiſhed ſome months, he died.

Some of the circumſtances in this caſe were undoubtedly unfavourable; but I have ſeen people do very well under ſimilar ones; and I ſtill think, that the patient choſe the leſſer of the two evils, and embraced the more probable chance.

CASE XLVI.

A Poor man, who was in St Bartholomew's Hoſpital for a hurt in one of his legs, deſired me to look at his ſcrotum, which was of a very large ſize.

The tumor was principally formed by water in the tunica vaginalis teſtis; but, through the fluid, it was eaſy to diſtinguiſh a diſeaſed teſticle. He complained of uneaſineſs from the weight, and had, he ſaid, now and then, a pain ſhot up from the teſticle into his back: he had alſo, now and then, a cholic, with nauſea and inclination to vomit; and was very ſubject to a ſort of ſtrangury. I drew off near a wine quart of a yellow thin fluid, by means of a trochar; and, when that was done, was ſo ſatisfied that the teſtis was diſeaſed, that I would have immediately removed it; but the man would not conſent. He ſoon got well of his leg, and was diſcharged from the hoſpital.

He was a bricklayer's labourer; and in about a fortnight or three weeks time from his diſcharge fell from a high ſcaffold, and was ſo much hurt that he died, after he had been again in the hoſpital two days; and I gladly embraced the opportunity of examining his dead

body. The tunica vaginalis was not only much diſtended, but conſiderably thickned. The teſticle was a great deal too large, and too hard; but, upon diviſion, did not ſhew any conſiderable mark of diſeaſe, except in its very center, where there was a ſmall quantity of a diſcoloured ſanies, and a putrid ſlough. The ſpermatic veſſels were not at all altered from a natural ſtate, except that the vein was varicous. Immediately below the emulgent veſſels, on the right ſide, was an irregular tumor, near as big as the kidney itſelf, perfectly ſchirrhous, and firmly attached both to the renal blood-veſſels, and to the aorta. The external part of this tumor was rough and unequal, and of a whitiſh colour; and in the center of it were exactly the ſame appearances, as within the teſticle, viz. a ſmall quantity of matter, and a ſlough.

Where the ureter was croſſed by this tumor, it was much compreſſed, and ſtraitned in its diameter; but below this ſtricture, it was conſiderably dilated. The kidney was not quite healthy in its appearance.

Had this man been caſtrated, I make no doubt that his internal ſchirrhus would have deſtroyed him; but that was a circumſtance not to be collected from his general ſtate, or from his complaints, and therefore not to be foreknown: the operation would therefore have been vindicable, though unſucceſsful.

CASE XLVII.

A Middle-aged man was brought into St. Bartholomew's-Hoſpital for an accidental hurt, of which he ſoon got well: and when he was going to be diſcharged, he deſired Mr. Freke, whoſe patient he had been, to look at one of his teſticles. It was large and unequally hard; gave him a great deal of pain at ſhort intervals, and ſeemed

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to contain a quantity of fluid in its middle part: the ſpermatic chord was pretty free, juſt at its exit from the abdomen; but all between that point and the teſticle was much diſeaſed.

Some of the gentlemen preſent expreſſed their apprehenſions, that the *ſtate* of the proceſs was ſuch, that the operation would moſt probably be unſucceſsful, and therefore they were rather inclined, that the man ſhould be diſcharged without any attempt of that kind; but Mr. Freke thought otherwiſe, and performed it immediately. The veſſels of the diſeaſed proceſs were varicous to a great degree, and very knotty and hard; the connecting membrane was much thickned, the epididymis and teſticle quite confounded together; and in the body of the latter was a quantity of bloody ſanies, contained in two or three large cells.

The man got no reſt after the operation, the veſſels of the dartos bled through all the dreſſings more than once, and in a few hours he became very hot and reſtleſs, with a pulſe quick and hard.

The next day he bled again; not from the chord, but from the whole dartos: his ſcrotum became much ſwelled, and loaded with a lymphatic kind of tumefaction, but was very little inflamed; his pulſe was inconceiveably rapid, but ſmall; he complained of acute pains in his back, a burning heat within it, an intolerable thirſt, and an anxiety that was more terrible to bear than all the reſt: toward night (of the ſecond day) his pulſe faultered, he became eaſy, and his extremities cold; and early on the third morning he died.

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CASE XLVIII.

A Healthy man, under forty, came to me with a complaint in one of his teſticles, the epididymis of which was much inlarged, and hardned, while the body of the teſtis ſeemed to be in a natural ſtate.

His age, his general appearance, and the particular ſtate of the part, induced me to believe it to be venereal; but, upon aſking him a few queſtions, he aſſerted, that he had never received any taint of that kind in his life. He ſaid, that the firſt time he had ever taken notice of this complaint, was about ſix weeks before, after riding hard in the day, and dancing all night; that it was very ſmall at firſt, had increaſed gradually, and now began to be very troubleſome to him, either in riding or walking; and that not only from its mere weight, but from frequent pain in it.

I am obliged to acknowledge, that I was, at this time, ſo prejudiced, by the generally prevailing doctrine, that a true ſchirrhus or cancer never began in the epididymis, that I thought, either that my patient was deceived himſelf, or had a mind to deceive me.

I therefore gave him a mercurial pill to take every night, conſiſting of a ſmall doſe of calomel, with ſome kermes mineral, and directed a ſmall portion of ung. mercur. to be rubbed every evening into the ſpermatic proceſs.

By purſuing this method for about ten days, his mouth became ſore, and he was much diſpleaſed thereby; I gave him ſome gentle cathatics, but his ſpitting kept at above a pint a day, for more than a fortnight: at the end of which time, the hardneſs, as well as ſize, and inequality of the epididymis and vas differens were manifeſtly increaſed; and his uneaſineſs in theſe parts was greater.

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The death of a near relation now called him into the country, where he ſtaid about a month. At his return, he ſent for me. The diſeaſe was increaſed, but ſtill confined to the epidydimis; which was now in that ſtate, which, I ſuppoſe, conſtituted the caro adnata of the antients: it was hard, craggy, painful, and in ſize nearly equal to the teſticle itſelf; the darting pains were frequent; and the uneaſineſs from its weight was conſtant and tireſome.

I was now ſatisfied of the true nature of the caſe, and let drop a hint of the propriety of removing the part; but having a very delicate and timorous man to deal with, I deſired him to take the opinions of ſome other gentlemen.

He ſaw Mr. Middleton and Mr. Nourſe as ſurgeons, and a third gentleman as a phyſician.

The two former adviſed immediate caſtration; the laſt ſeemed to wiſh him to take the cicuta, or the ſolanum, medicines then in faſhion. The thought of caſtration ſhocked him ſo much, that he willingly embraced any hints concerning ſpecifics.

He took the cicuta for more than two months, beginning with a ſmall doſe, and increaſing it gradually to very large ones. It now and then made him a little ſick and giddy; but the diſeaſe increaſed under it ſo manifeſtly, that I was apprehenſive that we were doing much worſe than merely loſing time. I ſignified my ſuſpicion, and preſſed the operation; but he would not hear of it.

The ſolanum was now tried under the direction of the doctor; but it diſagreed ſo much, even in the ſmalleſt quantity, that there was no poſſibility of perſiſting in it.

Upon this, as upon moſt occaſions of this kind, every acquaintance recommended either a ſpecific or a quack; moſt of which were tried, and I ſaw no more of my patient for above four months.

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He then ſent for me again. The whole teſticle and ſpermatic proceſs, quite within the belly, were thoroughly diſeaſed, hard, and knotty; his pain was acute, and almoſt conſtant; and his whole appearance truly pitiable.

He was much diſpleaſed that I, who had often preſſed him to ſubmit to the operation, would not now perform it; but it was too late. In a few days after this viſit, he applied to an operator; who required a very conſiderable fee before-hand, and layed the whole ſpermatic proceſs open. A very terrible hæmorrhage enſued, and he died the next day in inexpreſſible agony.

I viſited a patient with Mr. Markland, whoſe firſt local complaint was a hardned, inlarged epidydimis, and vas deferens; and upon whom the whole power of mercury, and other ſuppoſed deobſtruent medicines, together with cataplaſm, fomentation, &c. were tried, during a long ſpace of time, in abſolute confinement, but to no good purpoſe: the part became ſo large, ſo diſeaſed, and ſo painful, and the habit of the patient ſo much affected by it, that extirpation was abſolutely neceſſary. When the part was removed, I examined it very carefully; and never ſaw a more true and perfect ſchirrhus in my life. The epidydimis was thrice the ſize it ought to have been; its external ſurface was very unequal, and very hard; and in the center of it was a putrid ſlough, with a ſmall quantity of matter, juſt as it is found very often in the middle of a ſchirrhous and cancerous teſticle. The teſticle was hardly, if at all, altered from a natural ſtate, except that the tunica vaginalis was generally adherent to the albuginea. Its internal texture was ſoft, and bore very little mark of diſtemper.

I have, at this inſtant, a lad in St. Bartholomew's-Hoſpital, both whoſe teſticles are ſo truly diſeaſed, that they muſt of neceſſity be removed. I have ſeen him from the firſt of the attack. The diſeaſe for ſeveral months occupied only the epidydimis; and had no connection

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with, or dependance on, any venereal miſchief. Every thing that the art of ſurgery could do (or at leaſt every thing that I am acquainted with in it) has been tried, but without any effect; and nothing but the operation can ſave him.

CASE XLIX.

MR. William Sharp deſired me to viſit a patient with him. The caſe was a ſchirrhous teſticle. It was large, and very hard; but ſmooth, equal, and no other way painful, than from its weight. There was nothing in the teſticle, which forbad the operation; on the contrary, it was in ſuch ſtate, as to promiſe very fair for ſucceſs; but the ſpermatic proceſs, from the teſtis quite up to, and apparently within, the opening in the abdominal tendon, was ſo large and full, that it was impoſſible to feel the veſſels. This fulneſs, and increaſe of ſize, if it could be ſuppoſed to proceed from a diſeaſed ſtate of theſe veſſels, and their membranes, was ſuch a bar to caſtration, that nobody could poſſibly think of it in ſuch circumſtances: but, on the other hand, if it could be ſuppoſed to be owing to an extravaſated fluid, the withdrawing ſuch fluid might make a very material alteration in the ſtate of all the parts. Mr. Sharp ſaid, that he had ſeen this patient ſome months before, and had let out (as he thought from the tunica vaginalis) a quantity of water; and that he then found the teſticle a great deal too large; and was very ſure that he then diſtinctly felt the ſpermatic veſſels. The tumid proceſs, though large, full, and tight, yet was ſmooth, and equal throughout; and I thought, that I could very plainly feel a fluctuation through the whole of it; that is, from the opening in the oblique muſcle, to the upper part of the teſticle. The patient was young and healthy, the weight and ſize of

the teſticle very troubleſome; and nothing but this ſtate of the proceſs in the caſe, to make it neceſſary to defer the operation a moment. A puncture was made with a large lancet, into the tumor juſt above the teſticle; near a pint of clear yellow ſerum was diſcharged; the ſwelling ſubſided; the ſpermatic veſſels, which were in a ſound, natural ſtate, became eaſily diſtinguiſhable: the operation was immediately performed, and proved ſucceſsful.

CASE L.

A Poor ſailor, who had been diſcharged from one of the navy Hoſpitals, applied to St. Bartholomew's.

He had a ſchirrhous teſticle, which was not large, but was as hard as marble; very craggy, and unequal, and attended with frequent acute pain: the proceſs alſo was ſo large, that, upon ſuch examination as I had then time to make, I told the man, that I did not conceive, that he could receive any benefit, even from the operation; but one of the governors, prevailed on by the man's ſolicitation, deſired that he might be admitted.

The firſt time we were all met together, I produced this man for the general opinion; which was, that if the increaſed ſize of the ſpermatic proceſs was the effect of a diſeaſed ſtate of the parts compoſing it, the operation was improper, as it would only haſten the man's death, and that in a very painful manner; but if it could be thought to be owing (as in the preceding caſe) to an extravaſation of fluid in the common membrane, it was certainly worth while to try what the diſcharge of that fluid might produce.

The whole was related to the man: he was informed of our doubts, of what we intended to do, and of the probability that it might be of

no ſervice to him: a puncture was made in that part of the proceſs where the fluid was moſt palpable; a large quantity of lymph was diſcharged, the tumor ſubſided, the ſpermatic veſſels became very diſtinguiſhable; the operation of caſtration was immediately performed, and the man went out from the hoſpital well.

CASE LI.

A Poor man was taken into St. Bartholomew's Hoſpital, for a complication of complaints; but particularly for a frequent and acute pain in his back and belly.

When he had been there a day or two, he told the nurſe, that he had a complaint in his ſcrotum; and the next day I was deſired to look at him.

He had a diſeaſed teſticle, of the ſchirrhous kind, which was not very large, but was hard and unequal; the ſpermatic proceſs was not in a natural ſtate, nor very much diſeaſed; and he had a large and very troubleſome omental hernia. The man had alſo a very morbid aſpect; had his reſt frequently diſturbed by pain, and was near to fifty years old.

He was very ſolicitous to have ſomething done for him, and willing to ſubmit to any thing for that purpoſe; but his caſe was ſuch, as to render it not an eaſy matter to determine what to do.

His rupture was large, and very troubleſome; it was merely omental, and could not be kept up a moment, while he was in an erect poſture, without a truſs: a truſs he could not wear to any good purpoſe, without the pad of it preſſing on the ſpermatic chord, and aggravating a greater evil than his rupture, viz. his ſchirrhous teſticle. The weight of his rupture, added to that of his ſchirrhus, rendered it impoſſible for him to get his bread by labor.

The only method whereby he could be made capable of wearing a proper bandage for keeping up his rupture, or even of ſuſpending it with eaſe, was, by ſubmitting to have the ſchirrhous teſticle removed by caſtration; and then, his rupture being returned, he might be enabled to wear a truſs. But to this there were ſome objections. In the firſt place, the hernial ſac came ſo low, that the proceſs could not be tied, or cut off, without the ſac having been firſt either laid open, or diſſected off from it. In the next place, I did not like the ſtate of the ſpermatic proceſs, which was both too large and too hard: and in the third place, I thought the general circumſtances of his morbid appearance, and bad ſtate of health, were great objections to operations of ſuch conſequence, as either the laying open, or diſſecting of the hernial ſac, from the ſpermatic proceſs; or caſtration.

All this was related to the man in the faireſt manner poſſible; and he deſired to have ſuch, or any operation performed, which I ſhould think right.

Having been confined to his bed for more than a week previous to the operation, the omentum had hardly ever been down during that time, and was now perfectly up. This, though it might prove a circumſtance in the man's favour, was none in mine as an operator; for the hernial ſac being empty and flaccid, gave me thereby more trouble. The hernia was of the congenial kind; and, conſequently, when I had divided the ſac to the bottom, the ſtate of the ſpermatic chord and teſticle was manifeſt; and I had only to paſs my needle and ligature round the upper part of the former, without paying any more, or particular regard to the hernial ſac. Upon a nearer view of the ſtate of the proceſs, I liked it ſtill leſs than I had done before; but there was nothing now could be done, but to go through with the operation, and to take the chance of it. I did ſo; the man bore it well, and was better, for the firſt two or three days, than I could have expected. After

the firſt week was paſt, I was daily ſurpriſed at the good ſtate of my patient. He was eaſy, free from pain or fever, ſlept well, took nouriſhment; and it was impoſſible for any ſore to be, or to look, better.

At the end of three weeks, when he was to all appearance well, and his ſore almoſt healed, he was ſuddenly ſeized with pain all over him, and died on the ſecond or third day from this attack.

I had him opened. The portion of omentum, which had formed the hernia, had an attachment to the peritoneum, juſt within the mouth of the hernial ſac; which, I ſuppoſe, was the reaſon why it could not be kept up while he was erect. The lymphatic glands about the lumbal vertebræ were all diſeaſed; the liver was ſchirrhous throughout, and had a large collection of matter in its lower part.

AN

AN

ACCOUNT

OF THE

METHOD

OF OBTAINING

A PERFECT OR RADICAL CURE

OF THE

HYDROCELE,

By means of a SETON.

HANDEGGE

AN

ACCOUNT, &c.

AN Hydrocele is ſo irkſome a diſeaſe to the indigent and laborious, furniſhes even the eaſy and opulent with ſuch diſagreeable ideas and apprehenſions, and is to all who are afflicted with it ſo troubleſome and inconvenient, that every rational attempt toward relieving mankind from ſuch an evil, will, I make no doubt, be favourably received.

It is now ſome years ſince I firſt began to make particular inquiry into the nature of this, and ſome other diſeaſes of the teſticle, and the uſual methods of treating them; an inquiry, which they appeared to me, for many reaſons, both to deſerve and require. The reſult I communicated to the public, under the title of, "A Treatiſe on the "Hydrocele, or Watry Rupture, and other diſeaſes of the teſticle, its "coats and veſſels;" in which I endeavoured to be as preciſe, and as explicit as I could.

One part of this tract contains an examination of the various means, which have at different times, either accidentally produced a radical cure, or have been profeſſedly propoſed, and practiſed for ſuch purpoſe.

Among other means uſed to obtain this end, I mentioned the Seton; and ſpake of it as that which, for many reaſons, appeared to me to be preferable to all others; as a method which I had for ſome time practiſed with great ſucceſs; and as that which, if nothing ſhould occur to induce me to change my opinion, I ſhould continue to make uſe of.

Since that time I have had frequent opportunities of repeating the experiment, and it has ſo conſtantly, and uniformly anſwered my expectation, that my opinion concerning it is determined; and I am convinced, that it is the moſt ſucceſsfully efficacious of any.

This might be urged, and would perhaps be admitted, as a good reaſon for laying my thoughts on the ſubject again before the public; but I have others alſo to plead in vindication of the few following pages.

In the firſt place, I think that I have conſiderably and materially improved the operation and proceſs; and have rendered it leſs painful, and more certain.

In the ſecond, I find, that what I ſaid of it in the general treatiſe, has not been ſo clearly and perfectly underſtood as I could have wiſhed; and in conſequence either of brevity and obſcurity on my part, or miſintelligence on the part of ſome of my readers, my true meaning has not been received; and I have been ſubjected to the frequent interruption of troubleſome correſpondences on the ſubject.

And, in the third place, I might add, that ſome few gentlemen of conſequence, who have by this means been cured, have requeſted this publication.

A minute account of the nature and circumſtances of the diſeaſe, would be a mere repetition of what I have already ſaid at large in the book referred to; would be therefore unneceſſary, and beſide my preſent purpoſe; a ſhort and curſory one may perhaps throw juſt as much

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light on the ſubject, as may ſerve to render the deſcription of the operation, and the treatment after it, more eaſily intelligible.

The common bag in which both the teſticles are includéd, is called the Scrotum, and conſiſts of epidermis, ſkin, and that looſe cellular membrane, which is here called the Dartos; to which might perhaps be added, the expanded fibres of the cremaſter muſcle on each ſide. The proper coats of the teſticle, are, the tunica albuginea, and the tunica vaginalis. The former of theſe immediately inveſts the vaſcular compages of the teſtis, and is that coat with which it is covered while within the cavity of the abdomen, before birth. The latter is formed on the outſide of the ſaid cavity, is a proceſs of the peritoneum, and is placed ready for the reception of the teſticle when it ſhall be thruſt forth through the groin into the ſcrotum. Between the vaſcular ſtructure of the teſticle, and the tunica albuginea, there is no vacuity; but the external ſurface of the gland is in every part firmly adherent to, and connected with the internal one of the inveſting coat; the tunica vaginalis forms a hollow cavity, or bag, which looſely and unconnectedly envelopes the teſticle, covered by its albuginea.

When I ſay looſely and unconnectedly, I would wiſh to be underſtood aright. I do not mean that the teſticle hangs in the middle of the tunica vaginalis, (like a clapper within a bell) and has no connection with it; I mean, that all the ſuperior, anterior, and lateral parts of the tunica vaginalis are looſe from, and unconnected with the teſticle, which is at the ſame time firmly united to its poſterior part, in ſuch manner, that if the cavity of the tunica vaginalis was to be diſtended with wind, ſuch wind would occupy or fill all the looſe and unconnected part, and produce a tumefaction not unlike to a hydrocele, while the teſticle would be found firmly and immoveably attached to the hinder part of the ſaid cavity ſo diſtended.

To prevent the accretion of theſe coats in thoſe parts where they ought to be unconnected, and perhaps for ſome other purpoſes, the cavity of the tunica vaginalis is furniſhed with a fine lymph conſtantly exſuding into it; which lymph is as conſtantly abſorbed by proper veſſels; ſo that, in a healthy and natural ſtate, there never is any more of this fluid, within the bag, at a time, than may juſt ſerve (beſide what other purpoſe it may be intended for) to keep the two membranes from coming into immediate dry contact, and coheſion with each other. This ſmall quantity is ſufficient to preſerve the proper and natural cavity of the tunic; but never occaſions any degree of intumeſcence, or any unnatural or diſeaſed appearance of the part.

A deficiency, or total failure of the ſecretion of this fluid, will be followed by a partial or total coaleſcence of the two coats with each other; and conſequently a total or partial abolition of the cavity, a ſuper-abundance, or a ſecretion of more than the abſorbent veſſels can take up, muſt, on the other hand, inlarge and diſtend the ſaid cavity, by carrying all the looſe unconnected part of the bag farther and farther from the teſticle, in proportion to the quantity accumulated. The former I do know to be ſometimes, and I verily believe moſt frequently is, the conſequence of a ſevere hernia humoralis, as well as of other inflammations of the teſticle. The latter, among other diſeaſes, produces the hydrocele or watry rupture.

This being the caſe, that is, the intumeſcence of the ſcrotal bag being cauſed by the gradual accumulation of a fluid, which ought to have been abſorbed, it is almoſt always produced gradually; and therefore has, in moſt inſtances, made ſome progreſs before it is taken notice of; eſpecially by careleſs and inattentive people. For the ſame reaſon it will be found, that as it depends upon the circumſtances of ſecretion and abſorption, it will, in different people, make quicker or ſlower progreſs, according as the depoſition ſhall happen to be quicker

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or ſlower, and the abſorbent faculty, only more or leſs impaired, or totally obſtructed. As this diſeaſe is confined to the cavity of the tunica vaginalis teſtis; and as this bag has no communication with the cavity of the belly, the tumefaction can never be leſſened by any attempt toward reducing or returning it into the abdomen. For the ſame reaſon, it never is, nor can be liable to any alteration of ſize, or temporary diſtenſion, from the efforts or actions of coughing, ſneezing, expulſion of fœces, &c. For the ſame reaſon, (I mean the confinement of the fluid within the cavity of the tunica vaginalis) the intumeſcence, when early attended to, will always be found in the lower part, and does not riſe above the upper part of the teſticle, until the diſeaſe has made ſome progreſs, and the quantity is become conſiderable: therefore the ſpermatic proceſs will always, in the early ſtage of this diſtemper, be capable of being felt perfectly and diſtinctly; although when the tumor has arrived to any conſiderable degree of ſize, the fluid does ſo conceal the teſticle, as to render it not a very eaſy matter to find it. The three laſt circumſtances, well attended to, will always ſerve to diſtinguiſh the hydrocele from the inteſtinal hernia or common rupture, at leaſt in the beginning. To theſe might be added, ſeveral other characteriſtical marks of this diſtemper; ſuch as, that being neither accompanied by, nor occaſioning any inflammation, or irritation, it never gives pain, unleſs it be very rudely handled, or be permitted to attain ſuch ſize as to be troubleſome from its weight, or to be ſubject to excoriation from its magnitude; which may ſerve to diſtinguiſh it from the hernia humoralis, an inflammatory, and often a very painful diſorder. That if the fluid be thin and limpid, and the vaginal coat and membranes of the ſcrotum not thick, the tumor is often in ſome degree tranſparent; that is, the light of a candle or lamp may be ſeen through it. That conſtipation of belly does not render it at all more tenſe, or produce any uneaſineſs in it

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while it laſts; neither does the removal of ſuch obſtruction or conſtipation at all leſſen its volume, or make any alteration in it either to the eye, or to the finger. To all which ought always to be added, the *fluctuation of the fluid.*

The ſize and figure of the tumor, cauſed by this diſeaſe, are liable to conſiderable variety, dependant upon the quantity and conſiſtence of the fluid accumulated; the time ſuch accumulation may have taken up; the thickneſs or thinneſs of the vaginal bag, and membranes of the ſcrotum; and the equal or unequal manner in which theſe parts may have given way to the diſtenſion. Hence the tumor will be larger or ſmaller, round, flattiſh, pyriform, or globular; will be firm, tenſe, and reſiſtent, or lax, ſoft and eaſily compreſſible; ſmooth and regular in its ſurface, making one uniform figure, or divided by a kind of depreſſion or ſtricture, which will make it appear as if the water was in two diſtinct ſacculi or bags; it will alſo be more or leſs tenſe, as well as regular in its ſurface, as the contractile power of the ſcrotum, by means of the cremaſter muſcles, ſhall be more or leſs.

The qualities of conſiſtence and colour in the contained fluid is alſo various: it is thin, aqueous, roapy, viſcid, limpid, citrine, greeniſh, brown, bloody, clear, or turbid; from each of which ſome ſmall differences in the aſpect, feel, weight, tranſparency or obſcurity of the tumor will ariſe; but are of no conſequence with regard to any method of treatment, palliative or radical.

The methods of cure of a hydrocele are ſaid to be two, one called the Palliative, the other the Radical; the latter of which alone deſerves the name of cure.

The former conſiſts merely in letting out the water occaſionally, and is ſo ſimple and ſo trifling an operation, that I ſhall ſay nothing more of it, than that I think a ſmall trochar a much preferable inſtrument for this purpoſe on all accounts to the lancet, or any other.

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The radical cures, as they are called, may be collected from the writings of ſeveral of our predeceſſors. The general means they made uſe of were cautery, cauſtic, ligature, and tent. For the particulars relative to each of theſe, I muſt beg leave to refer my reader to the writers themſelves, a minute detail of them not being conſiſtent with the plan of theſe few ſheets. But without entering into ſuch diſquiſition, I believe I may venture to ſay, that whoever will give himſelf this trouble, will find, that all the means which were either profeſſedly uſed to obtain a radical cure, or which ultimately and accidentally produced ſuch event, were put in practice for three general reaſons, or under the influence of three general opinions; the firſt of which was, that the fluid found in the ſac of a hydrocele was always originally formed in the cavity of the belly, and deſcended from thence into the ſcrotum; the ſecond, that it was a diſeaſe of the habit, as well as of the particular part; that is, that it was general, as well as local; the third, that the collection of liquor found in it was either the neceſſary cauſe, or the conſequence, of a diſeaſed ſtate of the teſtis.

From theſe flow the applications of cautery and cauſtics to the groin, and of ligatures on the ſpermatic proceſs. From theſe are derived all the cautions to undertake the cure guardedly, to conduct it ſlowly, and to attend rigidly to the patient's general ſtate, by cathartics, alteratives, ſpecifics, iſſues, &c. &c. &c. and to theſe we owe the experiments made to induce ſuppuration from the parts affected.

Not being acquainted with the anatomical ſtructure and diſpoſition of the parts concerned in the diſeaſe, they had very terrible as well as very erroneous notions concerning it. They ſuppoſed that the fluid contained in the cyſt was thrown off from the habit as a kind of criſis; that the general conſtitution of the patient was by ſuch depoſition much relieved; that it prevented many other, and thoſe worſe diſorders;

ders; and, either that a morbid ſtate of the teſticle and epidydimis concurred in producing the fluid, or that the ſame parts neceſſarily became diſeaſed from lying in it. They therefore concluded, that altho' a radical or perfect cure might be obtained by certain means, or that certain means having been found now and then to have produced ſuch event, they might with probability be expected to anſwer ſuch purpoſe; yet the attempt ought never to be made without a ſtrict attention to the general evils which might enſue, as well as to the particular ones proceeding from the ſuppoſed morbid ſtate of the parts.

Inquiry and experiment have taught us better; have given us truer notions of the nature of the complaint; have induced us totally to lay aſide many of the means uſed by our fore-fathers; and although we do ſtill in ſome ſort continue ſome of them, yet it is upon different principles, and with very different views.

The noxious quality of the fluid, the diſeaſed ſtate of the parts whence it proceeds, or wherein it is depoſited; the critical, or depuratory nature of the depoſition; the neceſſity of drawing off the water partially and at ſhort intervals; and the fear of curing it locally leſt the general habit ſhould ſuffer; are all now known to be groundleſs apprehenſions: and it being alſo known, that the collection of fluid is originally made in the tunica vaginalis only, and that it does not deſcend from the belly, all attempts toward preventing ſuch deſcent are become equally abſurd.

The teſticle, although frequently ſomewhat inlarged in its dimenſions, and relaxed in its texture, is known to be ſound, to be otherwiſe unaffected, and unaltered, and to be fit for, and capable of performing the functions it was deſigned to execute; the fluid is acknowledged to be innoxious in its nature, neither proceeding from parts in a diſeaſed ſtate, nor cauſing any diſeaſe in the parts in which it is depoſited, and with which it is in contact; but being accumu-

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lated in conſequence of conſtant ſecretion, and deficient or non-executed abſorption, the intention of every rational practitioner, when he aims at a radical cure, is, to aboliſh the cavity of the tunica vaginalis, and thereby to prevent any future collection.

Whatever means can accompliſh this end with the leaſt fatigue, pain, or hazard, are certainly the beſt.

Of the inciſion I ſhall in this place ſay nothing, except that it lies under ſo many reſtraints from a variety of circumſtances, is ſo improper for the majority of perſons afflicted with the diſeaſe, and requires ſuch nice attention and ſuch judicious management, that it never can be recommended as fit for general practice.

The cauſtic, upon the rational principle of which I am now ſpeaking, viz. that of aboliſhing the cavity of the tunica vaginalis, has been practiſed by many; and that with ſuch ſucceſs as to induce ſome to think it the beſt and moſt eligible method: Among theſe is Mr. Elſe, who has lately publiſhed his opinion on the ſubject.

The introduction of ſuppurative medicines, by means of a tent, was practiſed by ſome of even our remote predeceſſors; and, as they tell us, with ſucceſs, even in complicated caſes; that is, in caſes where a diſeaſed ſtate of the teſticle has been added to the hydrocele: But whoever will attentively conſider their accounts of this matter will ſee, that this method, whatever might be its accidental conſequence, was not intended for the purpoſe which I am now ſpeaking of.

Perhaps there is no part of ſurgery which was leſs underſtood by our anceſtors, or concerning which they expreſſed themſelves with ſo little preciſion as the ſubject of diſeaſes of the teſticle: they have multiplied and confounded them in ſuch manner, and ſpeak of them in ſuch a jargon of unintelligible terms, that it is next to impoſſible to underſtand often what they really mean.

For a particular elucidation of this ſubject, the chirurgic world are much obliged to the late Profeſſor Monro of Edinburgh, and Mr. Samuel Sharp, late of Guy's Hoſpital, now of Bath.

The accounts which many of the beſt among the writers in ſurgery, even quite into our own time, have given of the diſeaſes of theſe parts under the terms ſarcocele, fungus attached to the ſpermatic veſſels, fungus ariſing from the teſtis, hydrocele, and hydro-ſarcocele, are error itſelf; and the operations which they deſcribe, and recommend, are many of them coarſe, and either impracticable, or very unfit for practice. But however from theſe accounts, ſtrange and irrational as they are, we may collect that they conceived the diſeaſes which they call the hydro-ſarcocele, and the caro adnata ad vaſa ſpermatica, to be (in contradiſtinction from the ſarcocele and the fungus ſpringing from the teſticle,) curable diſeaſes, the one by extirpation of the fungus, the other by ſuppuration.

No preciſe definition of what they have thought proper to call the hydro-ſarcocele has been given by them, and therefore we have no better method of forming a judgment concerning it, than by conſidering the event and ſucceſs of their method of treating what they have ſo called, with what we know concerning the ſtructure of the teſticle, its diſorders, the means which we now find to be ſucceſsful in them, and the diſappointments, and diſagreeable circumſtances which ſometimes occur in them.

Fabritius ab Aquapendente has been particular on what he calls the hydro-ſarcocele, and has given an account of his method of curing it; but whoever is acquainted with diſeaſes of the teſticle, and will compare with ſuch knowledge what Fabritius has ſaid concerning his method and its ſucceſs,* will, I am inclined to believe, think on this ſubject

* "Si carnoſa ſimul et aquoſa ſit hernia, ego talem adhibeo curam. Seco cutem et in-
"ciſionem facio & exiguam, et in loco potius altiori quam in fundo, inde turunda impoſita,

ject as I do, which is, that the diſeaſe which he gives this hard complex name to, is nothing more than a true, ſimple hydrocele, in which the teſtis is ſomewhat inlarged beyond its natural ſize, and perhaps ſomewhat relaxed in its texture, in conſequence of ſuch enlargement; but ſtill ſound, and free from diſeaſe; ſtill fit for, and capable of executing its office.

That by his method he obtained a radical cure I make no doubt; his 'turunda digeſtivo, et pus movente medicamento imbuta,' would moſt probably occaſion a ſloughing of the tunica vaginalis, and conſequently an abolition of the bag or cavity; but whoever knows any thing of theſe matters muſt know, that a teſticle really and truly diſeaſed would not bear ſuch treatment; and therefore, that his ſucceſs was owing to the ſtate of the teſticle *not being* what he ſuppoſed it to be, and what the term he makes uſe of implies.

The method of Fabritius was within a few years paſt adopted and practiſed by Ruyſch.*

The means and conduct were nearly the ſame, and I have no doubt that the ſucceſs was equal. But the ſame objection ſtill remained; which was, that not only a ſuppuration was brought on, but the whole tunica vaginalis was ſo irritated and inflamed, that it neceſſarily became ſloughy, and was entirely deſtroyed. An objection which had been made to the method by cauſtic, and which I muſt acknowledge, is, in my opinion, an objection to it ſtill.

" poſita, cum digeſtivo et pus movente medicamento procedo, neque unquam totum pus " extraho, ſed perpetuo bonam intus relinquo, quod ſenſim carnem corrodat & ita ſanat."

FAB. AB AQUAPENDENTE.

" * Sanari quidem valet id mali pertuſo ſcroto ope inſtrumenti trochert dicti, vel lan- " ceola phlebotomica, ut aqua vulnere exeat, ſed cito plerumque recrudeſcit *malum*.

" Si *autem* curationem aggrederis aperiendo ſcrotum a parte ſuperiori, ad latus, tum- " que vulnus turunda oblonga, unguento roſaceo mercurio præcipitato rubro inuncto " oppleveris, donec lenis inflammatio, eique ſuccedens ſuppuratio parva, membranules " ſtillantes putreſcerit, tuncque eas tenaculo eduxeris, &c. RUYSCH.

The late profeſſor Monro, whoſe obſervations on the diſeaſes of the teſticle are very pertinent and very ingenious, ſeemed to think that it was by no means impracticable, by means of a ſlight degree of irritation, to excite ſuch an inflammation both in the tunica vaginalis and albuginea, as might occaſion a coaleſcence of them with each other, and thereby anſwer the end of aboliſhing the cavity, without deſtroying any part of either tunic.

I made the experiment propoſed by him, and found it ſometimes ſucceſsful, never hazardous, or prejudicial, but by no means certainly efficacious, or to be depended upon. The cannula, by its hardneſs and reſiſtance, was a very unpleaſant gueſt within the vaginal coat; and from its inflexibility, upon any unguarded motion of the patient, injured the teſticle and gave very acute pain; and the tent and bougie, which I occaſionally ſubſtituted in its place, although they did not give ſo much pain, were liable to a conſiderable degree of uncertainty.

Uncertainty and hazard are certainly very different things, and the latter much preferable to the former: not to have injured a man by an experiment, affords ſome degree of conſolation under a diſappointment; but yet when it is conſidered, that an operation and proceſs of this kind is ſubmitted to from choice, and not from neceſſity, if it fails of ſucceſs, although no real harm be done either to the part, or to the conſtitution of the patient, both the loſs of time and the confinement will become doubly irkſome, as they will be found not only not to have anſwered the end propoſed, but not to have brought the patient at all nearer to a cure than he was before the attempts. The reflexion is unpleaſant to both parties.

Being, from the effects both of the canula and tent, ſatisfied that there was no kind of hazard in the introduction of a foreign body into the cavity of the tunica vaginalis, nor from its remaining there; and having many opportunities of meeting with this diſeaſe in St. Bartholomew's,

lomew's, I determined to try what a ſeton would do toward raiſing ſuch a degree of inflammation as might occaſion a coalition of the two membranes, and effect the purpoſe propoſed by Profeſſor Monro.* The ſucceſs fully anſwered my expectation.

In my general treatiſe on the diſeaſes of the teſticle, I mentioned and recommended it, but as I could not be certain what a greater length of time might produce to make me change my opinion, I mentioned it with ſome degree of caution.

Since that time I have embraced every opportunity, both in the hoſpital and out, of practiſing it, and that under ſome improvements; and as I can now ſpeak poſitively to its ſucceſs, I thought it right to give it to the publick, who are always intituled to every benefit ariſing from the labours of every man whom they have honoured with any degree of confidence; and this as well on a principle of humanity as of gratitude.

What I have ſaid of it in the general treatiſe is in the following words, p. 443. "The point to be aimed at, is to excite ſuch a de-"gree of inflammation, both in the tunica vaginalis and tunica albu-

ginea,

* His words are, "Conſidering how readily contiguous inflamed parts grow together, "and how many inſtances there are of people having a radical cure made of this hydro-"cele by inflammations coming on the part, it would ſeem no unreaſonable practice to "endeavour a concretion of the two coats of the teſticle when they are brought conti-"guous, after letting out the water through the cannula of a trochar, by artfully raiſ-"ing a ſufficient degree of inflammation.

"This to be ſure muſt be done cautiouſly, and ſo that the ſurgeon can reaſonably ex-"pect to be maſter of the inflammation; and therefore the application of all irritating "medicines, the operation of which he could not immediately ſtop, or any ſingle me-"chanical effort, the effect of which he could not be ſure of, are not to be employed.

"Suppoſe the cannula of the trochar was to be left, by the extremity of it rubbing "againſt the teſticle, an inflammation might be artfully raiſed, the cauſe of which "might be taken away as ſoon as the ſurgeon thought fit. MEDICAL ESSAYS.

" ginea, as ſhall occaſion a general and perfect coheſion between " them; and this, if poſſible, without the production of ſlough or " abſceſs; without the hazard of gangrene, and without that degree " of ſymptomatic fever which now and then attend both the cauſtic " and the inciſion; and which, when they do happen, are ſo alarm- " ing both to patient and ſurgeon.

" Theſe ends I have frequently obtained by the uſe of a ſeton.

" It is a method of cure mentioned by Aquapendens from Guido, " and others before him, though their proceſs was ſomewhat different " from mine. I have ſeveral times tried it on ſubjects of very dif- " ferent ages, ſome of them more than fifty years old. It requires " confinement to bed only for a few days, after which the patient may " lye upon a couch to the end of the attendance, which is generally " finiſhed in about three weeks or a month at fartheſt, and during all " that time no other proceſs or regimen is neceſſary, than what an in- " flammation of the ſame part from any other cauſe, (for example a " hernia humoralis) would require.

" The manner of performing it is as follows. Chooſe a time " when the vaginal coat is moderately diſtended, and having pierced " it with a trochar of tolerable ſize, draw off the water; when that " is done, introduce into the cannula a probe armed with a ſeton con- " ſiſting of ten or twelve ſtrings of candle-wick cotton; paſs the " probe as high to the upper part of the vaginal coat as you can, and " on the end of that probe make an inciſion of ſuch ſize as to enable " you to pull it out eaſily, together with a part of its annexed ſeton; " then cut off the probe, and tie the cotton very looſely, covering " the orifices with pledgets. By the next day the ſeton will be found " to have contracted ſuch an adheſion to the tunica albuginea as would " cauſe a great deal of pain to detach; but this it is perfectly unne- " ceſſary to do, and it ſhould be ſuffered to remain without moleſta- " tion.

" tion. In about forty-eight hours the ſcrotum and teſticle begin to " ſwell and inflame; the patient ſhould then loſe ſome blood, and " have a ſtool or two, and the whole tumefied part ſhould be wrapped " in a ſoft pultice, and ſuſpended in a bag-truſs. The diſeaſe from " this time bears the appearance of a large hernia humoralis, and " muſt be treated in the ſame manner, by fomentation, cataplaſm, &c.

" The adheſion of the ſeton to the albuginea generally continues " firm, and I never meddle with, or move it, till it becomes perfectly " looſe, which it ſeldom does for the firſt fortnight, or until the in- " flammation is going and the tumor ſubſiding. By the time the ſe- " ton becomes looſe, the coalition of parts is univerſally and firmly " accompliſhed. I then withdraw it, and heal the orifices with a ſu- " perficial pledgit, &c."

This method was, as I ſaid, in general very ſucceſsful; but repeated trials furniſhed me with objections to ſome parts of it, and induced me to think that ſuch parts might be amended.

I found that cutting upon the end of the probe was troubleſome, both from its ſmalneſs and from its flexibility, and alſo that it was ſometimes difficult to keep it ſteady, for the ſame reaſons, and that it always required the aſſiſtance of another perſon's hand beſides that of the operator: a circumſtance one would always wiſh to avoid when poſſible. I found alſo, ſometimes, that the ſeton of candle-wick cotton did not paſs ſo eaſily as I could wiſh; and by rubbing the tunica albuginea too rudely, gave more pain than I liked. The ſeton as made of cotton, adhered, in ſome inſtances, too long and too firmly. From the intimate connection of the parts of the wet cotton with each other, it could never be brought away but entire; which, in ſome caſes, occaſioned an unneceſſary waſte of time. And, what was ſtill worſe, in two inſtances it adhered ſo firmly, that I was obliged to make a ſmall inciſion to get it away at all.

All

All theſe inconveniences and objections I have now obviated and removed.

The inſtruments I now make uſe of are in the annexed plate, and are,

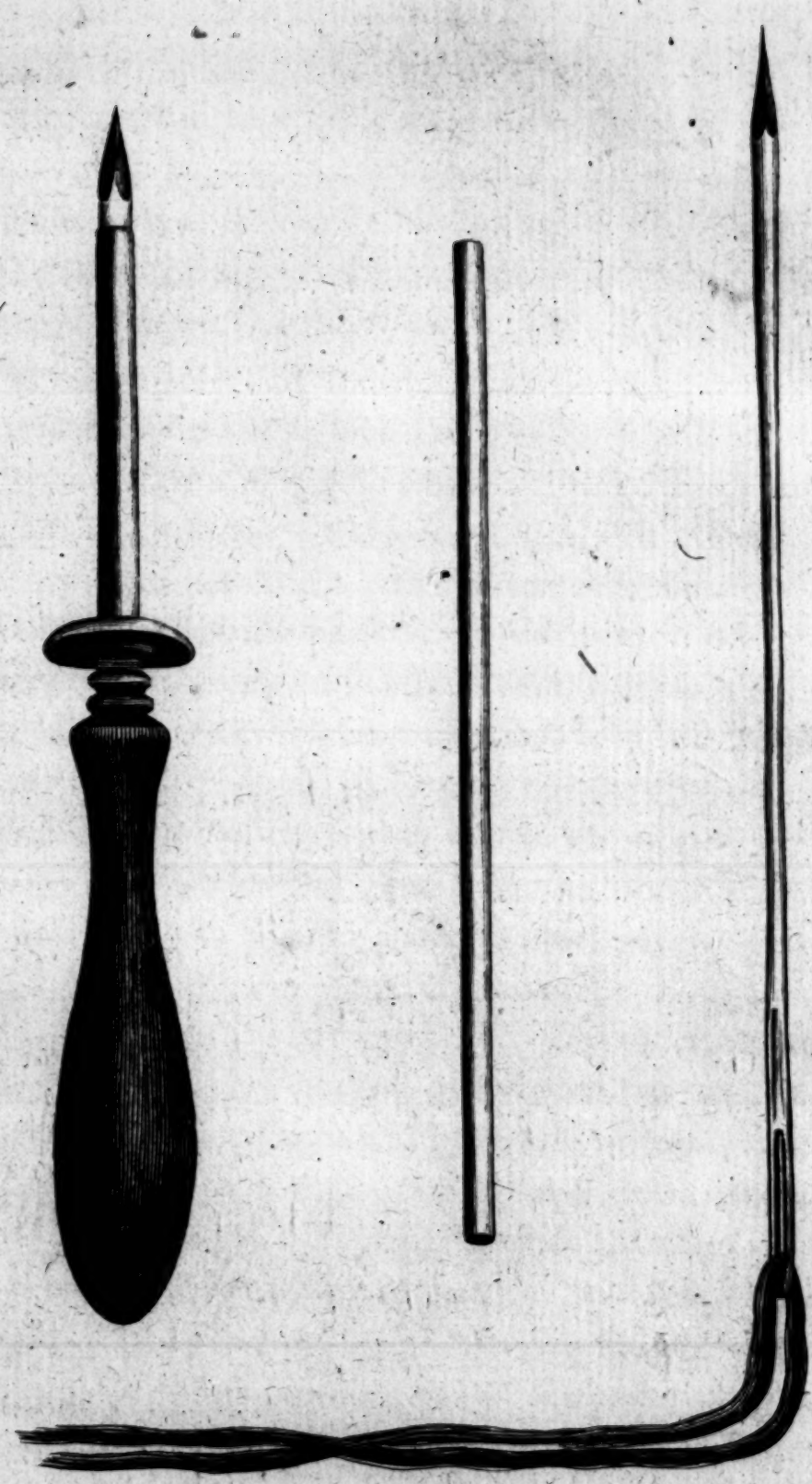
A trochar, the diameter of whoſe cannula is very nearly, but not quite, one fourth of an inch. Another cannula, which I call the ſeton-cannula, which is made of ſilver, and is of ſuch diameter as juſt eaſily to paſs through the cannula of the trochar, its length five inches, and a probe of ſix inches one-half long, having at one extremity a fine ſteel trochar-point, and at the other an eye which carries the ſeton; which ſeton conſiſts of juſt ſo much ſtrong, coarſe, white, ſewing-ſilk as will without difficulty paſs through the latter cannula, but at the ſame time will fill it.

With the trochar the inferior and anterior part of the tumor is to be pierced, as in common palliative tapping: as ſoon as the water is diſcharged, and the perforator withdrawn, the ſeton-cannula is to be paſſed through that of the trochar, until it reaches the upper part of the tunica vaginalis, and is to be felt in the very upper part of the ſcrotum. This done, the probe armed with its ſeton is to be conveyed through the latter cannula, the vaginal coat and integuments to be pierced by its point, and the ſeton to be drawn through the cannula, until a ſufficient quantity is brought out by the upper orifice. The two cannulæ are then to be withdrawn, and the operation is finiſhed. It is executed in two or three ſeconds of time, and with little more pain than is felt in common tapping.

By this method, every advantage which attended the former operation is obtained, and every inconvenience which it was liable to, is obviated and provided againſt.

The ſeton-cannula, by its firmneſs, bears tight againſt the place where the ſeton ſhould be brought out, the trochar-point of the probe

is



is kept from deviating by its confinement, and its point pierces thro' the ſkin immediately, and exactly in the place intended, while the ſeton by paſſing through the cannula is prevented from rubbing rudely over the teſticle.

As ſoon as the operation is finiſhed I put the patient into bed, and immediately give him twenty or twenty-five drops of tinctura thebaica, which I repeat or not, pro re nata.

About the third day the teſticle and ſcrotum begin to inflame and ſwell, and to put on the appearance of a hernia humoralis, or the ſwelled teſticle which now and then attends a clap; and requires the ſame and no other kind of treatment; that is, fomentation, pultice, a ſuſpenſory bag, a cool, temperate regimen, and an open belly.

By theſe means the inflammation is ſoon and eaſily appeaſed. As ſoon as this end is accompliſhed, I permit the patient to get out of bed and lie on a couch, or ſit in a great chair with his legs up; and I generally give the cortex in ſome form or other twice or thrice a day.

The ſoreneſs and tumefaction now diminiſh apace, and as ſoon as the parts are quite eaſy, which is generally about the tenth or twelfth day, I begin to withdraw the ſeton, taking out four, five, ſix, or ſeven threads of it at each dreſſing, which dreſſing conſiſts of nothing more than a ſuperficial pledget upon each of the orifices while they continue open, and a diſcutient cerate (ſuch as the ceratum ſaturnin.) to cover the ſcrotum.

The diſcharge of matter from the orifices is ſmall and trifling, no more than might be expected; the tunica vaginalis does not become ſloughy, but is preſerved intire; and the cure is accompliſhed, merely by the coaleſcence or coheſion of the tunica vaginalis, with the tunica albuginea. An event, which from what has fallen within my obſervation, I am inclined to believe, is moſt frequently the conſequence of a ſevere hernia humoralis.

In this circumſtance, viz. the accompliſhment of the cure, by adheſion of the two coats together, without any deſtruction of parts, conſiſts the material difference between the method of cure by ſeton, and that by cauſtic.

All the practitioners who make uſe of the latter allow, that it produces a ſlough of the whole tunica vaginalis; that it deſtroys the whole bag or cyſt, and that it is uſed with intention ſo to do.

In the cure by ſeton no ſlough is produced, (at leaſt I have never ſeen one) nor is the vaginal coat deſtroyed in any part of it; a firm coheſion is made between the two membranes occaſioned by the inflammation; and the cure is effected ſolely thereby.

I ſhall always moſt gladly embrace any opportunity to improve ſo noble and ſo really uſeful an art as ſurgery; but, at the ſame time, ſhould be very ſorry to have it ſuppoſed, that any partiality to my own opinion would make me miſrepreſent, or deviate from truth.

Since this pamphlet firſt appeared, Mr. ELSE has publiſhed a ſecond edition of his account of the cure by cauſtic.

In this he has recited two attempts by the ſeton, which were under the conduct of Mr. Martin, in St. Thomas's hoſpital.

I make no doubt that the circumſtances were as Mr. ELSE has related them; but I muſt take the liberty of ſaying, that although I have practiſed the method of cure by ſeton, on a very conſiderable number of people, both in the hoſpital of St. Bartholomew, and out of it, of all ages, and in all circumſtances, I have never yet met with that trouble, or thoſe diſagreeable ſymptoms which Mr. ELSE has related as happening to Mr. Martin's two patients; on the contrary, I am, from very frequently repeated experience, convinced,

that

that the cure by the ſeton is by much the leaſt hazardous, painful, or fatiguing, as well as the moſt expeditious and certain of any yet propoſed.

* Although I am as much a friend to ſimplicity in chirurgic operations as any man can be, and think that whatever can be well done by means of one inſtrument, is moſt frequently better done than by means of ſeveral; yet, in this inſtance, I cannot help thinking otherwiſe.

The intent of the ſeton cannula is to defend the tunica albuginea teſtis from the rude paſſage of the ſilk over it: from the pain and other diſagreeable circumſtances which I have ſeen attend the omiſſion of it, I muſt again recommend its uſe, though it does add to the inſtrumental apparatus. From frequent and repeated experience I muſt alſo adviſe the uſing a ſkein of white ſilk inſtead of ribband or tape.

Whatever is uſed will neceſſarily contract ſome degree of adheſion to the teſticle, during its inflamed ſtate; and this adheſion will unavoidably create ſome little trouble and uneaſineſs whenever the ſeton is withdrawn; but this pain and trouble will neceſſarily be leaſt, when the ſeton is compoſed of ſuch materials as are capable of being taken away at different times inſtead of all at once.

When a ſeton of any kind is uſed for the purpoſe of making, or of continuing a drain of matter, it is right to move it daily, and frequently to ſhift it; but in this caſe, as the intention is different, ſo ſhould our conduct be: the intention is merely, by the reſidence of the ſeton, to excite ſuch a ſlight degree of inflammation as ſhall occaſion an adheſion of the tunica albuginea teſtis to the tunica vaginalis, and not a ſuppuration; the moving it daily, or even at all until the proper time of taking it quite away can do no good, and muſt, by exciting unneceſſary pain, do harm.

I therefore muſt repeat my advice, to let it remain unmoved for a week or ten days, at the end of which time it will have accompliſhed its end, and then had better be removed than not.

Suppuration is not only not intended, but ſhould, as much as it may be in our power, be guarded againſt.

A

TREATISE

ON THE

FISTULA IN ANO.

PREFACE.

IT has been ſaid, that when a man thinks that he can, by publiſhing his opinion, derive any benefit to his fellow-creatures, he has no reaſon to be anxious about making an apology for ſuch publication.

This, within a certain limitation, is true; but, taken in its full extent, may be urged as an excuſe for obtruding that on the world, which may not be worth its acceptance.

Poſſibly the following Sheets may be thought to come within that predicament.

The only defence I have to make for them is, that from the moſt diligent and moſt frequent inquiry into the general method of treating the diſeaſe in queſtion, I am convinced, that ſuch method may be conſiderably improved; that is, may be rendered leſs painful, more expeditious, and more ſucceſsful.

I ſhould be very ſorry to have it thought, that I meant, by this, to ſignify, that my opinion on this ſubject is different from that of all my brethren

brethren: I know it is not; I know that there are ſome gentlemen of the profeſſion who think of it as I do: but I alſo know, that a very different doctrine is inculcated, and a very different method followed, by the majority of writers, practitioners, and teachers.

The number of thoſe who have had frequent opportunities of ſeeing this kind of diſeaſe, is not large, compared to that of thoſe, who are daily liable to be called to the care of it: the number of thoſe who reflect on what they ſee, or read, and who take the liberty of thinking for themſelves, is ſtill ſmaller; ſo that the precepts delivered by ſuch as have obtained any degree of reputation, do almoſt neceſſarily become rules of practice to the multitude.

I have, on this occaſion, carefully peruſed almoſt every writer of character on the ſubject; and think, that I may venture to ſay, that they are all either defective, or erroneous: they either paſs the diſeaſe over ſlightly, and without that regard which it certainly requires, and deſerves; or ſubject it to a method of cure, which is operoſe, painful, tedious, and unneceſſarily productive of future evil.

The term Cutting for a Fiſtula, conveys to a patient a terrible idea; and this terror is not a little increaſed by his incapacity of ſeeing the part diſeaſed. The majority of writers have greatly increaſed, rather than leſſened, this dread: and, as the operation is (under their directions) ſometimes performed, it is, indeed, a very ſevere one: a great part of this ſeverity appears to me to be unneceſſary; and I cannot help thinking, that a more ſerious reflexion on the parts concerned in the diſeaſe, and on its different nature in different ſtates and circumſtances, would lead us to a more rational method of treating it, and to a more eaſy and expeditious cure.

To point ſuch method out, is the intention of the following tract.

In the execution of it, I have ſometimes found myſelf under a neceſſity of controverting the opinions of ſome gentlemen of deſerved eminence: if I have done this with decency and good manners, no apology is neceſſary. The honor of our art, and the moral characters of its profeſſors ſuffer, whenever we pay ſo blind deference to any one, as prevents us from uſing our own judgments, and from declaring freely the reſult of our inquiries or experiments. Truth, as Lord Bacon has ſaid, is not the child of authority, but of time. And were we to allow ourſelves to ſuppoſe, (let the ſubject be what it may, provided it be liable to experiment) that nothing more, or new, could be taught, it is pretty clear, that nothing more, or new, would be learnt.

I therefore hope, that the freedom which I have uſed, either in relating the opinions, or in objecting to the practice of others, will not be attributed to an invidious diſpoſition to find fault; but merely to a deſire of being ſerviceable to mankind in that way, in which, I flatter myſelf, that I may be, in ſome degree capable; and of improving, as much as in me lies, the very neceſſary, and univerſally uſeful Science of SURGERY.

OF THE

FISTULA IN ANO.

SECT. I.

CLEAR and preciſe definitions of diſeaſes, and the application of ſuch names to them as are expreſſive of their true and real nature, are of more conſequence than they are generally imagined to be: untrue or imperfect ones occaſion falſe ideas; and falſe ideas are generally followed by erroneous practice.

It would be no difficult matter to produce inſtances of diſorders, whoſe treatment has, for a great length of time, been accommodated more to the titles impoſed upon them, than to their true and real character: among theſe, my preſent ſubject is a moſt glaring proof.

The cuſtom of giving the appellation of Fiſtula to every impoſtumation, and to every collection of matter formed near to the Anus, has, by conveying a falſe notion of them, been productive of ſuch methods of treating them, as (though, perhaps, ſuited to ſuch idea) are diametrically oppoſite to thoſe which ought to be purſued: ſuch

as have often rendered thoſe caſes tedious and painful, which might have been cured eaſily and expeditiouſly: and conſequently ſuch as have brought diſgrace on our art, and unneceſſary trouble on mankind.

A ſmall orifice or outlet from a large or deep cavity, diſcharging a thin gleet, or ſanies, made a conſiderable part of the idea, which our anceſtors had of a fiſtulous ſore, wherever ſeated. With the term fiſtulous, they always connected a notion of calloſity: and, therefore, whenever they found ſuch a kind of opening yielding ſuch ſort of diſcharge, and attended with any degree of induration, they called the complaint a Fiſtula. Imagining this calloſity to be a diſeaſed alteration made in the very ſtructure of the parts; they had no conception that it could be cured by any means, but by removal with a cutting inſtrument, or by deſtruction with eſcharotics: and, therefore, they immediately attacked it with knife or cauſtic, in order to accompliſh one of theſe ends: and very terrible work (by their own accounts) they often made, before they did accompliſh it.

Several of the abovementioned circumſtances do frequently attend collections of matter near to the rectum; and therefore for want of proper attention to the true nature of the caſe, the cuſtom of calling them all Fiſtulæ has generally prevailed, though without any foundation in truth or nature.

That abſceſſes, formed near the fundament, do ſometimes, from bad habits, from extreme neglect, or from groſs miſtreatment, become fiſtulous, is certain; but the majority of them have not, at firſt, any one character or mark of a true fiſtula; nor can, without the moſt ſupine neglect on the ſide of the patient, or the moſt ignorant miſmanagement on the part of the ſurgeon, degenerate, or be converted into one.

Collections

Collections of matter from inflammation (wherever formed) if they be not opened in time, and in a proper manner, do often burſt: the hole, through which the matter finds vent, is generally ſmall, and not often ſituated in the moſt convenient, or moſt dependant, part of the tumor: it therefore is unfit for the diſcharge of all the contents of the abſceſs: and, inſtead of cloſing, contracts itſelf to a ſmaller ſize: and, becoming hard at its edges, continues to drain off what is furniſhed by the undigeſted ſides of the cavity.

This is often the caſe in the moſt muſcular, or fleſhy parts of the body, where the cellular and adipoſe membrane does not abound; but is more particularly ſo in the neighbourhood of the anus, where that membrane is large in quantity, well ſtocked with fat, and not compreſſed by the action of any large or ſtrong muſcles.

Why critical defluxions and abſceſſes are frequently formed in this part, is ſo obvious to every one, who conſiders its natural ſtructure, that it muſt be quite unneceſſary to enter into an explanation of it: I ſhall therefore only obſerve, that when it becomes the ſeat of ſuch kind of defluxion, it can make little or no reſiſtance; but immediately ſwells, and becomes hard to a conſiderable extent: and although impoſtumation is very frequently the conſequence, yet the induration extending itſelf a good way beyond the bounds of the abſceſs, the firſt ſuppuration is by no means equal to the diſſolution of ſuch hardneſs; eſpecially, if inſtead of being opened properly, the ſkin has been ſuffered to burſt.

The ſmalneſs of this accidental orifice; the hardneſs of its edges; its being found to be the outlet from a deep cavity; the daily diſcharge of a thin, gleety, diſcoloured kind of matter; and the induration of the parts round about, have all contributed to raiſe, and confirm the idea of a true fiſtula.

To this idea, the general treatment of theſe caſes has therefore been made to accord: upon this, has been built the prevailing doctrine of free exciſion, or as free deſtruction, without any regard to the original production of the complaint, its particular ſeat, its date, or any other attendant circumſtances; and without examining, whether it would not admit a more eaſy, and a more expeditious method of cure. In ſhort, this notion, that all ſinuſes near the rectum are neceſſarily fiſtulous, has occaſioned the preſcription of ſuch a manner of treating them, from their very firſt appearance, as they can hardly ever ſtand in need of at any time; and a meer ill-founded ſuppoſition, that the induration of the parts about, may be owing to a diſeaſed calloſity, is urged as a reaſon for uſing them with more ſeverity than even ſuch ſtate would require.

SECT. II.

WHOEVER would obtain a true notion of the diſeaſe in queſtion, muſt conſider it under all the forms in which it makes its appearance. Theſe, which are many, and various, (both with regard to aſpect, ſituation, and ſymptoms) are, what ſhew the different nature of the complaint in different ſtates; and are the circumſtances, which ought to regulate a ſurgeon's conduct in the care of it.

Sometimes the attack is made with ſymptoms of high inflammation; with pain, fever, rigor, &c. and the abſceſs proves truly critical; that is, it becomes a ſolution of the fever.

In this caſe, a part of the buttock near to the anus is conſiderably ſwollen, and has a large, circumſcribed hardneſs. In a ſhort time, the middle of this hardneſs becomes red, and inflamed; and in the center of it matter is formed.

This

This (in the language of our anceſtors) is called in general a Phlegmon; but when it appears in this particular part, a Phyma.

The pain is ſometimes great; the fever high, the tumor large, and exquiſitely tender: but however diſagreeable the appearances may have been; or however high the ſymptoms may have riſen, before ſuppuration; yet, when that end is fairly and fully accompliſhed, the patient generally becomes eaſy and cool; and the matter formed under ſuch circumſtances, though it may be plentiful, yet is good.

On the other hand, the external parts, after much pain, attended with fever, ſickneſs, &c. are ſometimes attacked with conſiderable inflammation, but without any of that circumſcribed hardneſs, which characterized the preceding tumor; inſtead of which, the inflammation is extended largely, and the ſkin wears an eryſipelatous kind of an appearance. In this, the diſeaſe is more ſuperficial; the quantity of matter ſmall, and the cellular membrane ſloughy to a conſiderable extent.

Sometimes, inſtead of either of the preceding appearances, there is formed in this part, what the French call *une ſuppuration gangreneuſe*; in which the cellular and adipoſe membrane is affected in the ſame manner, as it is in the diſeaſe, called a Carbuncle.

In this caſe, the ſkin is of a duſky red, or purple kind of color; and, although harder than when in a natural ſtate, yet it has, by no means, that degree of tenſion or reſiſtance, which it has either in the phlegmon, or in the eryſipelas.

The patient has generally, at firſt, a hard, full jarring pulſe, with great thirſt, and very fatiguing reſtleſſneſs. If the progreſs of the diſeaſe be not ſtopped, or the patient relieved by medicine, the pulſe ſoon changes into an unequal, low, faultring one; and the ſtrength and the ſpirits ſink in ſuch manner, as to imply great and immediately-impending miſchief. The matter formed under the ſkin, ſo altered, is

ſmall

ſmall in quantity, and bad in quality; and the adipoſe membrane is gangrenous, and ſloughy throughout the extent of the diſcoloration. This generally happens to perſons, whoſe habit is either naturally bad, or rendered ſo by intemperance.

In each of theſe different affections, the whole malady is often confined to the ſkin and cellular membrane underneath it; and no other ſymptoms attend, than the uſual general ones; or ſuch as ariſe from the formation of matter or ſloughs in the part immediately affected. But it alſo often happens, that, added to theſe, the patient is made unhappy by complaints ariſing from an influence, which ſuch miſchief has on parts in the neighbourhood of the diſeaſe; ſuch as the urinary bladder, the vagina, the urethra, the hæmorrhoidal veſſels, and the rectum; producing retention of urine, ſtrangury, dyſury, bearing down, teneſmus, piles, diarrhœa, or obſtinate coſtiveneſs: which complaints are ſometimes ſo preſſing, as to claim all our attention. On the other hand, large quantities of matter, and deep ſloughs are ſometimes formed, and great devaſtation committed on the parts about the rectum, with little or no previous pain, tumor, or inflammation.

Sometimes the diſeaſe makes its firſt appearance, in an induration of the ſkin, near to the verge of the anus; but without pain or alteration of color; which hardneſs gradually ſoftens and ſuppurates: the matter, when let out, in this caſe, is ſmall in quantity, good in quality; and the ſore is ſuperficial, clean, and well-conditioned. On the contrary, it now and then happens, that although the pain is but little, and the inflammation apparently ſlight; yet the matter is large in quantity, bad in quality, extremely offenſive, and proceeds from a deep, crude hollow, which bears an ill-natured aſpect.

The place alſo where the abſceſs points, and where the matter, if let alone, would burſt its way out, is various, and uncertain. Sometimes

times it is in the buttock, at a diſtance from the anus; at other times near its verge, or in the perineum: and this diſcharge is made ſometimes from one orifice only, ſometimes from ſeveral. In ſome caſes, there is not only an opening through the ſkin externally, but another through the inteſtine into its cavity: in others, there is only one orifice, and that either external, or internal.

Sometimes the matter is formed at a conſiderable diſtance from the rectum, which is not even laid bare by it; at others, it is laid bare only, and not perforated: it is alſo ſometimes not only denuded, but pierced; and that in more places than one. The original ſeat of the miſchief is, in ſome caſes, high up in the pelvis, near the lower vertebræ of the loins, and the os ſacrum; and the matter comes from parts ſo diſeaſed, and ſo out of reach, that the caſe is hopeleſs from the firſt. Theſe diſcharges are to ſome perſons ſalutary, and prove ſolutions of general diſeaſes, which have long infeſted the habit: to others, they often prove fatal, by exhauſting the ſmall remains of ſtrength. If the diſeaſe has its foundation in the lues venerea (which is not a very uncommon caſe) it frequently communicates with the urethra, and neck of the bladder, producing great diſturbance and miſery to the patient. And ſometimes it happens, that fiſtulous openings, near the anus, give diſcharge to a ſanies, proceeding from a cancerous ſtate of ſome of the parts within the pelvis.

Whoever attends to this variety of ſtates and circumſtances, muſt be convinced, that no one particular method can ſuit them all; but that in this, as in many other caſes, the ſurgeon's conduct muſt be varied occaſionally, and adapted to the exigencies of each individual.

SECT. III.

IT very ſeldom happens, when inflammatory defluxions are made on the cellular membrane ſurrounding the inteſtine rectum, that it is in our power to prevent the formation of matter; nor if it was, would it often be right ſo to do; as theſe abſceſſes ſeldom happen to any body, to whom they are not, at leaſt, a temporary relief.

All conſideration, therefore, of that kind, is generally out of the queſtion: and our buſineſs, if called to it at the beginning, muſt be to moderate the ſymptoms; to forward the ſuppuration; when the matter is formed, to let it out; and to treat the ſore in ſuch manner, as ſhall be moſt likely to produce a ſpeedy and laſting cure.

When there are no ſymptoms which require particular attention, and all that we have to do is to aſſiſt the maturation of the tumor, a ſoft pultice is the beſt application. When the diſeaſe is fairly of the phlegmonoid kind, the thinner the ſkin is ſuffered to become, before the abſceſs be opened, the better; as the induration of the parts about will thereby be the more diſſolved; and, conſequently, there will be the leſs to do after ſuch opening has been made. This kind of tumor is generally found in people of full, ſanguine habits; and who, therefore, if the pain be great, and the fever high, will bear evacuation, both by phlebotomy, and gentle cathartics: which is not often the caſe of thoſe, who are ſaid to be of bilious conſtitutions; in whom the inflammation is of larger extent, and in which the ſkin wears the yellowiſh tint of the eryſipelas; perſons of ſuch kind of habit, and in ſuch circumſtances, being in general ſeldom capable of bearing large evacuation.

The

The obſervation is general, with regard to eryſipelatous inflammations in any part of the body, and is by no means confined to this.

I may, poſſibly, be cenſured, for ſtepping out of my way to mention it; but it is a truth of ſo much importance to many, and I have ſeen ſuch melancholy inſtances from its being not known, or not attended to, that my intention muſt plead my excuſe.

This kind of inflammation (I mean the eryſipelatous) generally makes its attack with nauſea, vomiting, ſlight rigor, heat, thirſt, and reſtleſſneſs.

The quickneſs of pulſe, and heat of ſkin, are indications for ſome degree of evacuation, and indeed ſometimes render it requiſite; but it is a very prevailing opinion with many practitioners, that theſe evacuations ſhould be freely made, and frequently repeated: in ſhort, that the cure of this kind of inflammation is ſafely to be effected by them; which is ſo far from being true, that the practice has proved fatal to many. If, for inſtance, blood be drawn off in ſuch quantity, as that the patient's pulſe ſinks ſuddenly, or if his ſtrength be conſiderably reduced by purging, it is no very uncommon thing for the inflammation to leave the part firſt affected, and for ſuch complaints to come on immediately, as ſoon prove deſtructive, and afford no opportunity to repair the miſchief, which the evacuation has produced.

When the inflammation is of this kind, the quantity of matter formed is ſmall, compared to the ſize and extent of the tumor; the diſeaſe is rather a ſloughy, putrid ſtate of the cellular membrane, than an impoſtumation; and, therefore, the ſooner it is opened, the better: if we wait for the matter to make a point, we ſhall wait for what will not happen; at leaſt not till after a conſiderable length of time: during which, the diſeaſe in the membrane will extend itſelf, and, conſequently, the cavity of the ſinus, or abſceſs, be thereby greatly increaſed.

When, inſtead of either of the preceding appearances, the ſkin wears a duſky, purpliſh-red color; has a doughy, unreſiſting kind of feel, and is very little ſenſible: when theſe circumſtances are joined with an unequal, faultring kind of pulſe, irregular ſhiverings, a great failure of ſtrength and ſpirits, and inclination to doſe, the caſe is formidable, and the event generally fatal.

The habit, in theſe circumſtances, is always bad; ſometimes from nature, but much more frequently from gluttony and intemperance. What aſſiſtance art can lend, muſt be adminiſtred ſpeedily; every minute is of conſequence; and if the diſeaſe be not ſtopped, the patient will ſink. Here is no need for evacuation of any kind; recourſe muſt be immediately had to medical aſſiſtance; the part affected ſhould be frequently fomented with hot ſpirituous fomentations; large and deep inciſion ſhould be made into the diſeaſed part; and the applications made to it ſhould be of the warmeſt, moſt antiſeptic kind.

This alſo is a general kind of obſervation; and equally applicable to the ſame ſort of diſeaſe in any part of the body. Our anceſtors have thought fit to call it in ſome a Carbuncle, and in others by other names; but it is (wherever ſeated) really and truly, a gangrene of the cellular, and adipoſe membrane; it always implies great degeneracy of habit, and, moſt commonly, ends ill.

Strangury, diſury, and even total retention of urine, are no very uncommon attendants upon abſceſſes forming in the neighbourhood of the rectum and bladder; more eſpecially, if the ſeat of them be near the neck of the latter.

They ſometimes continue from the firſt attack of the inflammation, until the matter is formed, and has made its way outward; and ſometimes laſt a few hours only.

The two former moſt commonly are eaſily relieved by the loſs of blood, and the uſe of gum arabic, with nitre, &c. But the laſt (the

(the total retention) is, (while it continues) both fatiguing and alarming.---They, who have not often ſeen this caſe, generally have immediate recourſe to the catheter; and for this they plead the authority of precept: but the practice is ſo eſſentially wrong, and I have ſeen ſuch terrible conſequences from it, that I cannot help entring my proteſt againſt it.

The neck of the bladder, from its vicinity to the parts where the inflammation is ſeated, and from its being involved in the ſame common membrane, does certainly participate, in ſome degree, of the ſaid inflammation. This will, in ſome meaſure, account for the complaint; but whoever conſiders the extremely irritable ſtate of the parts compoſing that part of the urethra, (if I may be allowed ſo to call it) and will, at the ſame time, reflect on the amazing and well-known effects of irritation, will be convinced that the principal part of this complaint ariſes from that cauſe; and that the diſeaſe is, ſtrictly ſpeaking, ſpaſmodic. The manner, in which an attack of this kind is generally made; the very little diſtention which the bladder often ſuffers; the ſmall quantity of urine ſometimes contained in it, even when the ſymptoms are moſt preſſing; and the moſt certain, as well as ſafe, method of relieving it; all tend to ſtrengthen ſuch opinion.*

But whether we attribute the evil to inflammation, or to ſpaſmodic irritation, whatever can, in any degree, contribute to the exaſperation of either, muſt be palpably and manifeſtly wrong. The violent paſſage of the catheter through the neck of the bladder (for violent in ſuch circumſtances it muſt be) can never be right. I will not ſay, that

* Great and acute as the pain is in the neck of the bladder, and about the pubes, in a retention of urine, it is not greater, nor more acute, than is ſometimes felt in the ſame parts, by thoſe, in whoſe bladder no urine is to be found, and in whom the catheter may be paſſed with very little trouble or reſiſtance. This complaint, which I have more than two or three times ſeen, is truly ſpaſmodic; and, accordingly, always gives way to opium, more eſpecially if uſed in the form of glyſter.

that it never ſucceeds; but I will ſay, that it can hardly ever be proper to make the attempt.

If the inſtrument be ſucceſsfully introduced, it muſt either be withdrawn as ſoon as the bladder is emptied; or it muſt be left in it: if the former be done, the ſame cauſe of retention remaining, the ſame effect returns; the ſame pain and violence muſt be again ſubmitted to, under (moſt likely) increaſed difficulties. On the other hand, if the catheter be left in the bladder, it will often, while its neck is in this ſtate, occaſion ſuch diſturbance, that the remedy (as it is called) will prove an exaſperation of the diſeaſe, and add to the evil it is deſigned to alleviate; nor is this all; for the reſiſtance, which the parts, while in this ſtate, make, is ſometimes ſo great, that if any violence be uſed, the inſtrument will make for itſelf a new rout in the neighbouring parts, and lay the foundation of ſuch miſchief, as frequently baffles all our art.---An accident, which I have known happen to thoſe, whoſe judgment and dexterity have never been doubted.

The true, ſafe and rational method of relieving this complaint is, by evacuation and anodine relaxation: this not only procures immediate eaſe, but does, at the ſame time, ſerve another very material purpoſe; which is that of maturating the abſceſs. Loſs of blood is neceſſary; the quantity to be determined by the ſtrength and ſtate of the patient: the inteſtines ſhould alſo be emptied, if there be time for ſo doing, by a gentle cathartic; but the moſt effectual relief will be from the warm bath, or ſemicupium, the application of bladders with hot water to the pubes and perineum, and, above all other remedies, the injection of glyſters, conſiſting of warm water, oil, and opium. There may have been caſes, which have reſiſted and baffled this method of treatment; but I have never met with them.

On the other hand; I have ſeen ſo great and permanent miſchief, from the premature uſe of the catheter, that it would have been better

for

for the patient to have ſunk under the firſt evil, than to have lived to experience that variety of miſery, to which all they are ſubject, who are afflicted with a diſeaſed or injured neck of the bladder.

A painful teneſmus is no uncommon attendant upon an inflammatory defluxion on the parts about the rectum. The frequent uſe of the muſcles, whoſe office it is to expel from the gut whatever is troubleſome to it, and by whoſe action, the parts, which make the ſeat of the diſeaſe, muſt be continually compreſſed, make this, while it laſts, a very diſagreeable complaint.

If a doſe of rhubarb, joined with a warm anodyne, ſuch as the conf. mithrid. or ſuch-like, does not remove it, the injection of thin ſtarch and opium, or tinct. thebaic. is almoſt infallible.

The bearing down, as it is called, in females, as it proceeds, in this caſe, from the ſame kind of cauſe (viz. irritation) admits relief from the ſame means as the teneſmus.

In ſome habits, an obſtinate coſtiveneſs attends this kind of inflammation, accompanied, not unfrequently, with a painful diſtention, and enlargement of the hæmorrhoidal veſſels, both internally and externally. While a quantity of hard fæces are detained within the large inteſtines, the whole habit muſt be diſordered; and the ſymptomatic fever, which neceſſarily accompanies the formation of matter, muſt be conſiderably heightened. And while the veſſels ſurrounding the rectum (which are large and numerous) are diſtended, all the ills proceeding from preſſure, inflammation, and irritation, muſt be increaſed. This is too obvious to need any explanation: and it muſt be as obvious, that phlebotomy, laxative glyſters, and a low, cool regimen, muſt be the remedies; while a ſoft cataplaſm applied externally ſerves to relax and mollify the ſwollen, indurated piles, at the ſame time that it haſtens the ſuppuration.

These are, I think, the moſt material of the complaints, which attend inflammatory defluxions, and formations of matter about the anus and rectum. They are indeed moſt of them ſymptomatic, or acceſſory to the original diſeaſe; but they are frequently of ſuch immediate conſequence to the eaſe, and ſometimes even to the ſafety of the perſon afflicted, that they require all our attention. Whoever neglects or miſtreats them, will cauſe his patient to ſuffer a great deal of unneceſſary pain, fatigue, and even hazard: whoever attends to, and treats them properly, will find that, by relieving and appeaſing theſe accidental ills, he will aſſiſt the cure of the principal complaint, and gain time, inſtead of loſing it.

SECT. IV.

LET us now conſider this diſeaſe, when the firſt ſymptoms attending the inflammation are gone off; and matter is either formed and collected, in ſuch manner as to be fit for a ſurgeon to give diſcharge to it; or, (that opportunity having been avoided or neglected,) it has burſt through the parts containing it, and has made its own way out.

The different ſtates and circumſtances produced either by the collection of this matter, or by the manner in which it has made its eſcape, will neceſſarily occaſion a difference in the manner of treating the caſe; and may, for method-ſake, as well as for the more perfectly underſtanding the true nature of the diſeaſe, be reduced to two general heads; viz.

1. Thoſe, in which the inteſtine is not at all intereſted; and,

2. Thoſe, in which it is either laid bare, or perforated.

Let us firſt ſuppoſe the matter to be fairly formed; to have made its point, as it is called; and to be fit to be let out.

Where

Where ſuch point is, that is, where the ſkin is moſt thin, and the fluctuation moſt palpable, there the opening, moſt certainly, ought to be made.

Some of our predeceſſors, either from a fear, which almoſt neceſſarily accompanies the want of anatomical knowledge; or from an aukwardneſs attending the diſuſe of a cutting inſtrument; adopted the method of opening theſe (as well as moſt other abſceſſes) by cauſtic.

With all due deference to authority, I will venture to ſay, that it is in general wrong; and particularly ſo in the preſent caſe.

It often gives unneceſſary pain; and it produces a loſs of ſubſtance, and a kind of cicatrix, which is not only unſeemly, but frequently proves a laſting inconvenience.

Some of the patrons of potential fire, do, indeed, give a ſpecious kind of reaſon for its uſe; viz. that it makes a more large and free opening for the diſcharge; and that, by the time the eſchar is ſeparated, the hollow underneath is generally more than half filled up.

In a few, (very few) particular caſes, where the deſtruction of glandular parts may become neceſſary, after the eſchar is thrown off, (as in the caſe of venereal bubos) there may be ſome force in this argument; and cauſtics may be found uſeful; but in the preſent caſe, and in moſt others, in which they are freely and frequently applied, they appear to me to be highly improper; as they neceſſarily occaſion a loſs of parts, and a kind of eſchar; which is, in general, an indelible blemiſh, to ſay no worſe. And with regard to the particular circumſtance of the hollow being filled almoſt up, by the time the eſchar is ſeparated, if the ſurgeon will dreſs an abſceſs, opened by inciſion, in the ſame eaſy, ſuperficial manner, he does one opened by cauſtic, he will find the conſequence to be the ſame. But, I know not why, a notion has long prevailed, that an abſceſs opened by a knife, muſt

be immediately crammed, and ſtuffed with dreſſings, while that, on which a cauſtic has been applied, muſt be let alone, until the eſchar caſts off. Let the one be treated as the other is, (and as they both ought to be) and the event will be found to be alike in each: excepting this material difference in favor of the knife, that it will not neceſſarily occaſion any deſtruction of parts, loſs of ſubſtance, nor any deformity which is at all comparable with what muſt follow the uſe of the cauſtic.

In making the opening, the knife, or lancet ſhould be paſſed in deep enough to reach the fluid; and, when it is in, the inciſion ſhould be continued upward, and downward,* in ſuch manner as to divide all the ſkin covering the matter. By theſe means, the contents of the abſceſs will be diſcharged at once; future lodgment of matter will be prevented; convenient room will be made for the application of proper dreſſings; and there will be no neceſſity for making the inciſion in different directions, or for removing any part of the ſkin compoſing the verge of the anus.

Notwithſtanding that all theſe collections of matter are generally called by the name of Fiſtulæ, and are all ſuppoſed to affect the inteſtinum rectum, yet, it is very certain, that the ſeat of the abſceſs, (the place where the matter is formed) is, ſometimes, at ſuch diſtance from the gut, that it is not at all intereſted by it; and that none of theſe caſes either are, or can be originally fiſtulæ.

In this ſtate of the diſeaſe, we have no more neceſſarily to do with the inteſtine, than if it was not there; the caſe is to be conſidered merely as an abſceſs in the cellular membrane; which will require (in the

* When I ſay upward and downward, I ſuppoſe the patient to ſtand on his feet, with his legs and thighs ſtraight, and his body leaning forward over a table, or a bed; which poſture gives the faireſt view of the parts; and puts them into the beſt poſition for the operation, as well as for the operator.

the uſual phraſe) to be digeſted, incarned, and (if practicable) healed, without meddling with the rectum in any manner.

As this is a matter of ſome importance to the patient, it is worth a little conſideration.

Suppoſe an abſceſs formed in the neighbourhood of the rectum, which, after a certain degree of ſwelling and inflammation, ripens, or comes to a point, ſomewhere near to the verge of the anus. Suppoſe alſo a large and convenient opening to have been made by a ſimple inciſion; the contents of the abſceſs to have been thereby diſcharged; and a ſore or cavity produced, which is, perhaps, conſiderable in ſize: this cavity is to be filled up in ſuch manner, as to produce a firm and laſting cure.

The frequent uſe of the term filling up, and the generally-received opinion, that the induration of the parts about is a diſeaſed calloſity, appear to me to have been the two principal ſources of error and miſconduct in theſe caſes.

Wherever matter is formed in conſequence of inflammation, it always leaves, upon being let out, a proportional hollow, and ſome degree of induration. The former of theſe is of different ſize, according to the quantity of matter; and the latter depends both on the degree of previous inflammation, and the more or leſs perfect ſuppuration of the abſceſs.

The generally-received opinion, with regard to theſe two circumſtances (hollow and hardneſs) is, that the former is cauſed entirely by loſs of ſubſtance; and the latter (as I have already obſerved) by diſeaſed alteration in the ſtructure of the parts.

The conſequence of which opinion is, that as ſoon as the matter is diſcharged, the cavity is filled and diſtended, in order to procure a gradual regeneration of fleſh; and the dreſſings, with which it is ſo

filled, are moſt commonly of the eſcharotic kind, intended for the diſſolution of hardneſs.

The practice is a neceſſary conſequence of the theory. Whoever ſuppoſes diſeaſed calloſity, and great loſs of ſubſtance, will neceſſarily think himſelf obliged to deſtroy the former; and to prevent the cavity, formed by the latter, from filling up too haſtily. On the other hand, he, who conſiders this matter as it really is; that is, he, who regards the cavity of the abſceſs as being principally the effect of the gradual diſtraction and ſeparation of its ſides, with very little loſs of ſubſtance, compared with the ſize of the ſaid cavity; and who looks upon the induration round about, as nothing more than a circumſtance which neceſſarily accompanies every inflammation in membranous parts, more eſpecially in thoſe which tend to ſuppuration; will, upon the ſmalleſt reflection, perceive, that the dreſſings applied to ſuch cavity ought to be ſo ſmall in quantity, as to permit nature to accompliſh that end, which ſhe always aims at, as ſoon as the matter is let out; (I mean, the approach of the ſides of the cavity toward each other) and that ſuch ſmall quantity of dreſſings ought to conſiſt of materials proper only to encourage eaſy and gradual ſuppuration.

This is a fact ſo obvious to common ſenſe, that it muſt appear to every one who will coolly and impartially conſider it.

What is the part in which the diſeaſe is ſeated? and what are the alterations which ſuch diſeaſe produces? The part is mere cellular membrane; and the alteration is obſtruction and inflammation, ending in the formation of matter. But do theſe create any new body? do not the ſides of the abſceſs ſtill remain cellular and adipoſe membrane, only inflamed, thickened, hardened, and rendered purulent? can ſuch alteration require any thing more toward reſtoring the parts to a natural ſtate, than a free ſuppuration from the parts ſo altered? or can it make extirpation or deſtruction neceſſary? Moſt certainly, it cannot.

cannot. How then is ſuppuration to be produced and maintained? Not by thruſting in ſuch applications, as by their quantity diſtend, and by their quality irritate and deſtroy; but by dreſſing lightly, and eaſily, with ſuch as appeaſe, relax, and ſoften.

The fact is capable of experiment; and every man who will make it, that is, who will try the different methods, and attend to the conſequences, muſt be able to determine it; unleſs blinded by prejudice, or influenced by a worſe motive.

A moment's attention to the conduct of nature, when left to herſelf, and not interrupted by art, will, perhaps, ſet this matter in a clearer light.

When an abſceſs of this kind is opened by a ſurgeon, the cavity is found proportioned to the contents; and, conſequently, if the quantity of matter be large, the hollow is conſiderable. If this hollow be immediately filled with dreſſings (of any kind), the ſides of it will be kept from approaching toward each other; or may even be farther ſeparated. But if this cavity be not filled, or have little or no dreſſings of any kind introduced into it, the ſides immediately collapſe; and, coming nearer and nearer, do, in a very ſhort ſpace of time, convert a large hollow into a ſmall ſinus. And this is alſo conſtantly the caſe, when the matter, inſtead of being let out by an artificial opening, eſcapes through one made by the burſting of the containing parts.

It is indeed true, that this ſinus will not always, (and particularly in the diſeaſe I am now ſpeaking of) become perfectly cloſe, and heal; but the aim and conduct of nature is not, therefore, the leſs evident; nor the hint, which art ought to borrow from her, the leſs palpable.

In this, as in moſt other caſes, where there are large ſores, or conſiderable cavities, a great deal will depend on the patient's habit, and the care that is taken of it: if that be good, or if it be properly corrected, the ſurgeon will have very little trouble in his choice of dreſſings;

ſings; all that he will have to do will be, to take care that they do not offend either in quantity or quality; but if the habit be bad, or injudiciouſly treated, he may uſe the whole farrago of externals, and only waſte his own and his patient's time.

In ſhort, all theſe caſes are, at firſt, mere abſceſſes; the conſequences of inflammation, and require no other treatment than what would be proper in the ſame kind of caſe in all other parts. Some few of them are ſo circumſtanced, with regard to the inteſtine, that it is quite unneceſſary to meddle with it at all: but whether that be the caſe, or not; whether the diviſion of the rectum become a neceſſary part in the cure, or not; they, moſt certainly, do not deſerve the name of fiſtulæ; nor require that ſort of treatment which fiſtulæ are ſaid, and thought, to ſtand in need of: though by being, from their very firſt appearance, ſuppoſed to be ſuch, they are frequently, by miſmanagement, rendered truly fiſtulous.

By this, (that is, by light, eaſy treatment) large abſceſſes, formed in the neighbourhood of the rectum, will ſometimes be cured, without any neceſſity occurring of meddling with the ſaid gut. But it much more frequently happens, that the inteſtine, although it may not have been pierced, or eroded by the matter, has yet been ſo ſtript, or denuded, that no conſolidation of the ſinus can be obtained, but by a diviſion; that is, by laying the two cavities, viz. that of the abſceſs, and that of the inteſtine, into one.

The neceſſity of doing this, may, in many caſes, be known by the ſurgeon, at firſt; that is, when he opens the abſceſs, he may find the inteſtine ſo bare, and in ſuch ſtate, as plainly to prove, that he will not be able to effect a cure without the operation: in other inſtances, he may have reaſon, at firſt, to flatter himſelf with ſucceſs, and be diſappointed.

When the former is the caſe; when the gut is found to be in ſuch ſtate, that there is no reaſon to expect a cure, without its being divi-

ded;

ded; that operation had better (on many accounts) be performed, at the time the abſceſs is firſt opened, than be deferred to a future one. For if it be done in the manner, in which, I will venture to ſay, that it always may, it will add ſo little to the pain, which the patient muſt feel by opening the abſceſs, that he will ſeldom be able to diſtinguiſh the one from the other, either with regard to time or ſenſation: whereas, if it be deferred, he muſt either be in continual expectation of a ſecond cutting, or feel one, at a time when he does not expect it.

The intention, in this operation, is to divide the inteſtine rectum, from the verge of the anus, up as high as the top of the hollow in which the matter was formed; thereby to lay the two cavities of the gut and abſceſs into one; and, by means of an open, inſtead of a hollow, or ſinuous ſore, to obtain a firm and laſting cure.

Ingenious, mechanical, and whimſical people * have often buſied themſelves, in inventing inſtruments for this purpoſe: the ſyringotomy, the cultellus falcatus, the probe-razor, &c. have all at times been in uſe; ſciſſars alſo of various kinds, both ſtraight and crooked, have been employed in this operation: the three firſt may be made to ſerve the purpoſe very well; but to the laſt, (the ſciſſars) there is in this, as well as in almoſt every operation, in which they are frequently uſed, a palpable objection, viz. that, by pinching at the ſame time that they cut, they occaſion a great deal of unneceſſary pain. They are, I know, in great uſe with many, who, if they were deprived of their probe-ſciſſars, would think themſelves incapacitated from doing buſineſs; but they are, upon all occaſions where mere diviſion is required, a very bad inſtrument; they may aſſiſt an aukward or an unſteady hand, but are more fit for a farrier, than for a ſurgeon.

In

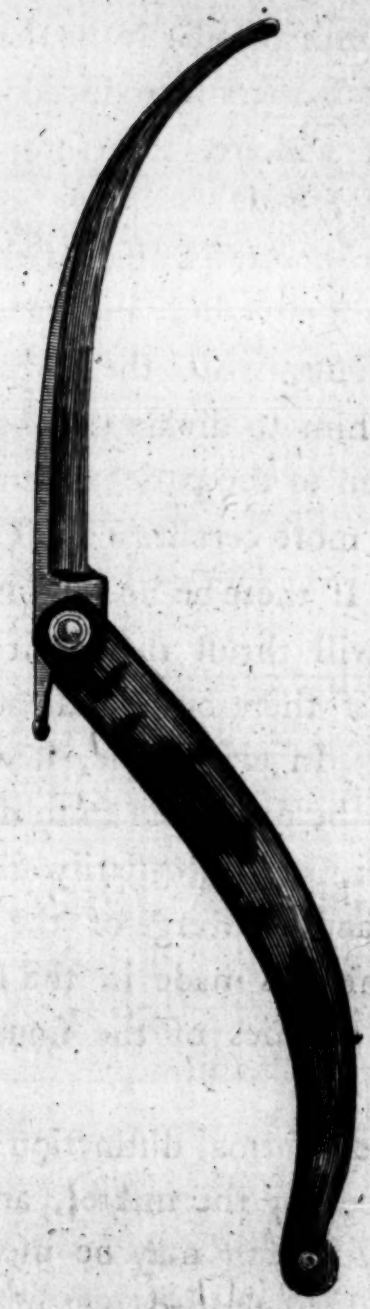
* The late Mr. Freeke invented an inſtrument for this purpoſe; but it was, upon trial, found to cut the operator's finger, with ſo much more certainty than the patient's inteſtine, that it has long been laid aſide.

In all chirurgic operations, the inſtrument made uſe of cannot be too ſimple, nor too keen; and, if poſſible, ſhould never be out of the ſight, or the direction of the finger of the operator; and, whenever it is, (as muſt ſometimes neceſſarily be the caſe) it is liable to ſome degree of uncertainty. Sciſſars introduced into the rectum are always in this predicament; and are, therefore, (as well as on account of their pinching quality,) bad.

The curved, probe-pointed knife, with a narrow blade, I have always found to be the moſt uſeful and handy inſtrument of any. This introduced into the ſinus, while the ſurgeon's fore-finger is in the inteſtine, will enable him to divide all that can ever require diviſion; and that with leſs pain to the patient, with more facility to the operator, as well as with more certainty and expedition than any other inſtrument whatever. If there be no opening in the inteſtine, the ſmalleſt degree of force will thruſt the point of the knife through, and thereby make one: if there be one already, the ſame point will find and paſs through it. In either caſe, it will be received by the finger in ano; will thereby be prevented from deviating; and being brought out by the ſaid finger, muſt neceſſarily divide all that is between the edge of the knife, and the verge of the anus: that is, muſt by one ſimple inciſion, (which is made in the ſmalleſt ſpace of time imaginable) lay the two cavities of the ſinus, and of the inteſtine, into one.

Authors make a very formal diſtinction between thoſe caſes in which the inteſtine is pierced by the matter, and thoſe in which it is not; but although this diſtinction may be uſeful, when the different ſtates of the diſeaſe are to be deſcribed, yet in practice, when the operation of dividing the gut becomes neceſſary, ſuch diſtinction is of no conſequence at all; it makes no alteration in the degree, kind, or quantity of pain, which the patient is to feel; the force required to puſh

the



the knife through the tender gut, is next to none; and, when its point is in the cavity, the caſes are exactly ſimilar.

This is the only operation, which (in the circumſtances under our preſent conſideration) ever can be neceſſary: and this appears to me, to be the ſafeſt, eaſieſt, and moſt expeditious method of performing it.

I know, that it is contrary to the opinion and practice of many; who think that the removal of ſome part, both of the inteſtine and of the verge of the anus, is neceſſary in theſe caſes; but long and repeated experience has convinced me of the contrary: and I ſhall, in the next ſection, have occaſion to ſpeak more particularly to that point.

Immediately after the operation, a ſoft doſſil of fine lint ſhould be introduced (from the rectum) between the divided lips of the inciſion; as well to repreſs any ſlight hæmorrhage, as to prevent the immediate re-union of the ſaid lips; and the reſt of the ſore ſhould be lightly dreſſed with the ſame. This firſt dreſſing ſhould be permitted to continue, until a beginning ſuppuration renders it looſe enough to come away eaſily; and all the future ones ſhould be as light, ſoft, and eaſy as poſſible; conſiſting only of ſuch materials, as are likely to promote kindly and gradual ſuppuration. The ſides of the abſceſs are hard; the inciſion muſt neceſſarily, for a few days, be inflamed; and the diſcharge will, for ſome time, be diſcolored and gleety: this induration, and this ſort of diſcharge, are often miſtaken for ſigns of diſeaſed calloſity, and undiſcovered ſinuſes, upon which preſumptions, eſcharotics are freely applied, and diligent ſearch is made for new hollows; the former of theſe moſt commonly increaſe both the hardneſs and the gleet; and by the latter new ſinuſes are ſometimes really produced. Theſe occaſion a repetition of eſcharotics, and, perhaps, of inciſions; by which means, caſes, which, at firſt, and in their own

nature, were ſimple and eaſy of cure, are rendered complex and tedious.

That this is the truth, without exaggeration, is well known to many; and whoever will look over the writings of ſome of our immediate predeceſſors, or even of ſome of our cotemporaries, will find, that, immediately after pinching and ſnipping the gut with ſciſſars, we are directed to fill the inciſions with lint; and, after having diſtended the cavity by ſuch means, to dreſs, in future, with ſuch medicines, as, though uſed under the ſpecious names of digeſtives, detergents, &c. do really inflame and irritate the parts to which they are applied, and retard, inſtead of encouraging, a kindly ſuppuration.

Among theſe, the mercurius præcipitatus ruber ſtands principal: this ſeems to have been the great external ſpecific of moſt of our immediate predeceſſors, and to have been uſed by them, for the very different purpoſes of deſtruction and reſtoration: with this, either in dry powder, or mixed with unguent, the tents, pledgits, &c. with which they dreſſed theſe ſores, were ſpread or embued; with this they dreſſed the recently-divided lips of the wound in the inteſtine; and with this they filled the whole cavity of the abſceſs.

That the ſame practice ſtill too much prevails, they who pleaſe, may be convinced.*

I would beg leave to aſk any patron of this method of dreſſing, what he would ſay to a man, who ſhall order a large tent, well charged with præcipitate, to be thruſt up the undivided, unwounded rectum of a perſon, who, from any cauſe whatever, had an inflammatory defluxion on the hæmorrhoidal veſſels and inſide of the ſaid gut? Would he not ſay, that ſuch tent would prove a fatiguing, inflaming ſuppoſitory?

* Mr. De la Faye ſays—"Si les chairs s'elevent trop, on les conſumera avec la pierre "infernale;" and in many books of reputation, the butyrum antimonii, the trochiſci e minio, the pulvis angelicus, &c. are preſcribed for frequent uſe.

ſuppoſitory? and would he not be right in ſaying ſo? Is then the rectum rendered leſs ſenſible, and leſs irritable, by being wounded? Or, can that very application, which proves a painful ſtimulus to a gut not divided, become an eaſy digeſtive to one that is? If any man thinks that it will, I would adviſe him to make the experiment on himſelf; and I would then appeal to the teſtimony of his own unprejudiced ſenſations.

In ſhort, to quit reaſoning, and ſpeak to fact only: In the great number of theſe caſes, which muſt have been in St. Bartholomew's Hoſpital, within theſe ten or twelve years, I do aver, that I have not met with one, in the circumſtances before deſcribed, that has not been cured by mere ſimple diviſion, together with light, eaſy dreſſings: and that I have not, in all that time, uſed, for this purpoſe, a ſingle grain of præcipitate, or of any other eſcharotic.

Why is it, that we hear ſo much of miracles performed by the paſte of one quack? and by the injections, oils, and balſams of others? when we all know, that there is nothing ſpecific for the cure of this diſeaſe in their compoſitions: and, when we alſo know that the venders of theſe remedies are people, whoſe ignorance in matters of phyſic and ſurgery is below all notice.

That theſe cures are much more frequently talked of than made, I well know; but that ſome few people, who have been long and unſucceſsfully treated by ſurgeons, have got either well, or better, under the very negligent management of ſome of theſe quacks, is an inconteſtable truth; and very ſtrange it is, that we do not ſee why.

Fas eſt et ab hoſte doceri:---

The truth is; that, while we are looking for what theſe people do, we (if I may be allowed the phraſe) overlook what they do not do. It is true, we cannot find any ſpecific quality in the ſtrange jumble of ingredients which they put into their internal remedies; nor any par-

ticularly-ſanative one in their injections, balſams, &c. and therefore, are ſurprized at even the few inſtances of their ſucceſs; but ſtill overlook the one ſingle circumſtance, by which the good is produced.

It is, and ever muſt be, a firſt principle in quackery, to diſapprove and condemn whatever has been done before, be it right, or be it wrong: and it is alſo neceſſary for quacks, to avoid all connection with thoſe who are called Regular Practitioners; as well in order to have the ſole management of the patient, as to avoid inſpection.

For theſe reaſons, they always order all former dreſſings to be immediately thrown aſide, and diſuſed; and, not having in general ingenuity enough, even to ſeem to apply others, with any degree of judgment or dexterity, they make uſe of a mere ſuperficial plaſter, ointment, or injection: that is, without intending any ſuch thing, upon an honeſt, or a rational principle, they, for want of knowing what to do properly, leave the conduct of the ſore to nature; who, when the impediment of dreſſings, (which often offend either in quantity or quality) are removed, will do much more than her too officious aſſiſtants believe.

That the very few cures, which we have heard ſo much of, are produced in this manner, I am convinced; and ſo I am, that many of thoſe, which are thought, by ſeveral practitioners, to have been brought about by a multiplicity of dreſſings crammed in tight; and endeavoured to be kept ſo, by all the caution of compreſs and bandage, are very frequently effected by the conſtant and generally ſucceſsful endeavours of nature, to thruſt them forth again: or, at leaſt, ſo to diſplace them, that ſhe gradually gets opportunities of doing her own buſineſs, in ſpite of the impediments of art. The buſineſs of good ſurgery is to aſſiſt nature; but ſhe will, ſometimes, get the better even of the worſt.

Uſque recurret,
Et mala perrumpet furtim faſtidia victrix.

SECT.

SECT. V.

IN the preceding Section, I have ſuppoſed the matter of the abſceſs to have been formed, and collected; but ſtill to have been contained within the cavity, until let out from thence by an inciſion.

I am now to conſider it, as having made its own way out, without the help of art.

This ſtate of the diſeaſe is alſo ſubject to ſome variety of appearance; and theſe different appearances have produced, not only a multiplicity of appellations, but a groundleſs ſuppoſition alſo, of a variety of eſſentially different circumſtances.

When a diſcharge of the matter by inciſion is too long delayed, or neglected, it makes its own way out, by burſting the external parts ſomewhere near to the fundament; or by eroding, and making a hole through the inteſtine into its cavity; or ſometimes by both. In either caſe, the diſcharge is made ſometimes by one orifice only, and ſometimes by more. Thoſe, in which the matter has made its eſcape by one or more openings, through the ſkin only, are called blind, external fiſtulæ; thoſe, in which the diſcharge has been made into the cavity of the inteſtine, without any orifice in the ſkin, are named blind, internal; and thoſe, which have an opening both through the ſkin, and into the gut, are called complete fiſtulæ.

This is the language of all writers, as I have already obſerved: and thus, all theſe caſes are deemed fiſtulous, when hardly any of them ever are ſo; and none of them neceſſarily. They are ſtill mere abſceſſes, which are burſt without the help of art; and, if taken proper and timely care of, will require no ſuch treatment, as a true fiſtula may poſſibly ſtand in need of.

The

The moſt frequent of all are what are called the blind, external; and the complete. The method whereby each of theſe ſtates may be known is, by introducing a probe into the ſinus by the orifice in the ſkin, while the fore-finger is within the rectum: this will give the examiner an opportunity of knowing exactly the true ſtate of the caſe, with all its circumſtances.

Whether the caſe be, what is called a complete fiſtula, or not; that is, whether there be an opening in the ſkin only, or one there, and another in the inteſtine, the appearance to the eye is much the ſame. Upon diſcharge of the matter, the external ſwelling ſubſides, and the inflamed color of the ſkin diſappears; the orifice, which at firſt was ſloughy and foul, after a day or two are paſt, becomes clean, and contracts in ſize; but the diſcharge, by fretting the parts about, renders the patient ſtill uneaſy.

As this kind of opening ſeldom proves ſufficient for a cure, (though it ſometimes does) the induration, in ſome degree, remains; and if the orifice happens not to be a depending one, ſome part of the matter lodges, and is diſcharged by intervals, or may be preſſed out by the fingers of an examiner. The diſeaſe, in this ſtate, is not very painful; but it is troubleſome, naſty, and offenſive; the continual diſcharge of a thin kind of fluid from it, creates heat, and cauſes excoriation in the parts about; it daubs the linen of the patient; and is, at times very fœtid; the orifice alſo ſometimes contracts ſo, as not to be ſufficient for the diſcharge; and the lodgment of the matter then occaſions freſh diſturbance.

The means of cure propoſed, and practiſed, by our anceſtors, were three, viz. cauſtic, ligature, and inciſion.

The intention, in each of theſe, is the ſame, viz. to form one cavity of the ſinus and inteſtine, by laying the former into the latter.

Fear

Fear of hæmorrhage, in making a large diviſion of parts, and a deſign to deſtroy calloſity, gave riſe to the uſe of cauſtics, for this purpoſe; by the introduction of them in different forms and manners into the ſinus, that part of the inteſtine which divides its cavity from that of the abſceſs, is intended to be deſtroyed: and, thereby, the propoſed end of making one cavity of the two, is to be accompliſhed; while, at the ſame time, the ſuppoſed calloſity is to be waſted. For this purpoſe, ſome of the moſt fatiguing and painful eſcharotics have been preſcribed and uſed: the pulvis angelicus, the lapis infernalis, and troches and paſtes made with ſublimate, arſenic, &c. But the method is ſo cruel, ſo tedious, and ſo inexpert, that, I hope, it is, by this time, totally out of uſe: it was founded in error, tends only to miſchief, and I will not waſte the reader's time, in ſaying any thing more about it.*

The terror which a cutting inſtrument neceſſarily carries with it, the fear of a flux of blood from ſome conſiderable veſſels, together with a ſtrange, nonſenſical opinion, that a gradual diviſion of the parts was followed by a more ſound cure, than an immediate one by cutting, produced

* Doctor Daniel Turner, who practiſed ſurgery within theſe few years, uſed this method in its full extent. In his works may be found, an account of his forming tents of the trochiſci e minio; and thruſting them into the ſinus, there to remain till they had produced a ſufficient eſchar. In the ſame writer are accounts of ſtrong probe-ſciſſars, made to cut through parts of a conſiderable thickneſs; and where the external orifice was at a great diſtance from the anus: and of an iron ſcoop, made (to uſe the Doctor's own words) like a cheeſe-monger's taſter, to be thruſt up the rectum, and aſſiſt in the diviſion of it. What ideas this gentleman had of the diſeaſe, or of human ſenſation, I cannot imagine. The ſame gentleman, ſpeaking of the uſe of this iron ſcoop, tells us, that when he uſed it on one particular patient, the man thought that the Doctor was only thruſting up the dreſſings. It is no difficult matter to conceive what kind of dreſſings this man muſt have been accuſtomed to, who could not diſtinguiſh between the application of them, and the thruſting up an iron ſcoop.

produced the coarſe, unhandy method by ligature. The manner of uſing it was this: A probe, or needle, (according to the complete or incomplete ſtate of the ſuppoſed fiſtula) armed with a ſtrong ligature, was introduced, either naked or in a cannula, by the orifice in the buttock, and brought out at the anus, by the operator's finger: when that was done, the two ends of the ſaid ligature were tied together, in ſuch manner, and at ſuch repeated times, as, by degrees, to cut thro' all that was between its loop and its knot; that is, all that part of the inteſtine, which was next to the ſinus.

Among writers on this ſubject will be found very formal directions, about the proper time of the year for performing this operation; as well as concerning the proper materials wherewith to make the ligature. But as the whole operation is, on every principle of eaſe, expedition, ſafety, or certainty, unfit for practice, it would be an abuſe of the reader's patience to dwell any longer upon it.*

The third method is that by inciſion.

I have already given my opinion, on what appears to me to be the beſt and moſt proper method of dividing the inteſtine, in the caſe of a collection of matter formed juxta anum.

The intention to be aimed at by inciſion, in the preſent caſe, is exactly the ſame, and (I think) ought to be executed, in the ſame manner. I never ſaw, that any other kind of operation was neceſſary; I have not, for many years, performed any other; and I do not recollect a ſingle inſtance, in which it has failed to produce a cure, in ſuch caſes as were curable by any means. If

* See Celſus, whoſe account of the method by ligature has been followed by moſt of the writers ſince. "In has demiſſo ſpecillo, ad ultimum ejus caput incidi cutis debet; "dein novo foramine ſpecillum educi lino ſequente; quod in aliam ejus partem, ob id "ipſum perforatam, conjectum ſit: ibi linum apprehendendum, ligandumque cum al"tero capite eſt; ut laxè cutem, quæ ſuper fiſtulam eſt, teneat: idque linum debet eſſe "crudum, & duplex, triplexve, ſic tortum ut unitas in eo facta ſit. Interim autem li"cet negotia agere, ambulare, lavare, cibum capere, perinde atque ſaniſſimo," &c.

If, therefore, I intended to give my own opinion merely on this ſubject, I ſhould ſay, the ſame diviſion of the inteſtine, and with the ſame inſtrument, is all that is required; and, referring my reader back to the preceding ſection, ſhould give him no farther trouble on this head. But as I find my ſentiments in this matter are ſomewhat different from thoſe of many, I muſt beg leave to be indulged in the uſe of a few words.

I have ſaid, that in whatever manner, or with whatever inſtrument, the inteſtine be divided, the intention is the ſame: viz. to lay the cavity of the abſceſs into that of the gut; and, thereby to convert a hollow ſinous ſore, into an open one; preventing, by the ſame means, the future lodgment of matter, and giving room for the application of proper dreſſings.

The two caſes (a collection of matter, and a ſinus) ſeem to me to require exactly the ſame treatment, and I have never found it fail of being equally ſucceſsful in both; that is, I never found, that the matter, having found its own way out, made any other operation on the gut, except the mere ſimple diviſion, at all neceſſary.

But it is ſaid, and that by authors to whom great regard is due, that this is not all that is requiſite, eſpecially in the preſent circumſtances; that this will not produce a cure, or aſſure ſucceſs; that mere diviſion of the inteſtine is not ſufficient; and that, unleſs we cut out, remove, and extirpate a portion both of the ſaid inteſtine, and the ſkin conſtituting what is called the verge of the anus, a firm and laſting cure will not follow. This is the doctrine of writers of eminence, and the practice of a large body of ſurgeons.

When I have mentioned the names of Cheſelden, De lay Faye, and le Dran, I need not cite any others of leſs note. The firſt of theſe was a gentleman, whoſe reputation in his profeſſion was great; the two latter are in as high character now in France. The influence

of theſe upon their readers muſt be conſiderable; and, therefore, it becomes a matter of the more importance, that their doctrine be juſt and defenſible.

The methods which theſe gentlemen have propoſed, and which have been by many adopted, are ſomewhat different from each other; but do all tend to the ſame purpoſe; are all calculated to prevent imaginary evils; and are all productive of real ones.

Mr. Cheſelden, in the laſt edition of his Anatomy, ſays,---"The "true fiſtula runs between the muſcular and inner coat of the rectum: "it is cured by opening it the whole length into the cavity of the gut: "but it is yet better, if it can be done, to extirpate all that is fiſtu- "lous and ſchirrhous; for that is a ſure way, to make one operation "perfect the cure."

In his Obſervations, publiſhed at the end of Mr. Gataker's tranſlation of Le Dran's ſurgery, Mr. Cheſelden deſcribes a method of his own inventing, by the introduction of one blade of a pair of polypus-forceps into the ſinus, and of the other into the rectum. By which means, a certain portion of the inteſtine is held faſt between the chops of the inſtrument, in order to be cut out with the ſciſſars.

After having given an explanation of a plate, deſigned to repreſent the forceps introduced in ſuch a manner as to hold the piece of inteſtine faſt, he adds,---"I formerly cut out a pyramidal piece in the "manner here deſcribed; but I find this way with the forceps much "more convenient, and more eaſy to be executed."

How much this method may be preferable to that which Mr. Cheſelden uſed to practiſe, I know not; but I will venture to ſay, that this more eaſy method is horridly painful, is operoſe, and abſolutely unneceſſary towards obtaining a cure.

The wound, that is, the orifice of the ſinus in the buttock, is, by Mr. Cheſelden's direction, to be firſt dilated with a ſponge tent; then one

one of the blades of a pair of large polypus-forceps is to be thruſt up the ſinus, while the other within the inteſtine, pinches it between them; and then, this piece ſo pinched is to be ſnipped out by the repeated attacks of a pair of ſciſſars. A very tedious, and very painful operation this muſt neceſſarily be; and by Mr. Cheſelden's own account, not always ſucceſsful: for, although he does ſay,---"The "operation being thus performed, I have never found wanting a ſe-"cond cutting:" yet, he immediately adds,---"If, after this opera-"tion, there is ſtill an internal diſcharge into the gut, it may be an "uſeful iſſue; and continue the benefit which nature deſigned by the "diſeaſe.* We ſhould alſo be very careful not to perform it, when "the patient is troubled with the piles; for I have known one, in "that caſe, bleed to death."

It would be no difficult matter, to make great objections to this method of operating, even if the one thing intended by it was neceſſary; I mean the extirpation of a portion of the rectum: this end might certainly be obtained by eaſier means: but, as that is not the caſe, as ſuch extirpation appears to me to be totally unneceſſary, I ſhall not enter into it.

Mr. De la Faye, a practitioner and writer of eminence in France, and a gentleman to whom the chirurgic world is much indebted, is a warm patron of the practice of cutting away both a part of the inteſtine, and of the ſkin compoſing the verge of the anus. After the external

* This is a method of making an iſſue, to which few people would (I believe) chuſe to ſubmit: eſpecially, if they conſider, that they might have enjoyed all the benefit of it, without any operation at all; merely by leaving their diſeaſe to nature. The ſame gentleman, ſpeaking of the inteſtine rectum, tells us, that he once applied a cauſtic lengthways on the inſide of the inverted gut, to cure a prolapſus; and adds, that it proved ſucceſsful. This I am almoſt ſorry for; leſt Mr. Cheſelden's authority ſhould attempt any other perſon to make the ſame attempt.

ternal incision, neceſſary for letting out the matter, has been made, he ſays,—" Si les pus a fait un progres conſiderable du cote de la feſſe, " on y fera une autre inciſion, qui tombera perpendiculairement ſur " l'inciſion longitudinale; on coupera les angles formez par ces inci- " ſions, pour rendre l'exterieur de la playe plus large que le fond, & " pour panſer plus aiſement." 'If the matter has extended itſelf 'conſiderably toward the buttock, another inciſion ſhould be made, 'in ſuch manner as to croſs the former; the angles formed by which 'inciſions ſhould be cut away: as well to render the external part of 'the wound larger than the internal, as to give room for the more 'convenient application of dreſſings to the ſore.'

If Mr. De la Faye had ever, in his own perſon, had the misfortune to experience the inconvenience ariſing from the loſs of ſkin near to the fundament; or had he attended to that which it produces to thoſe, who either from choice, or neceſſity, ride or walk much, I am inclined to believe he would have been more ſparing of it.

For the firſt three or four days, this kind of inciſion does, certainly, render the applications of dreſſings more convenient; becauſe the wound is thereby conſiderably enlarged; but, as ſoon as digeſtion has ſoftened the edges of the ſingle perpendicular inciſion, that difference ceaſes; and the dreſſings may be applied with equal facility to the one as to the other.

After this period is paſt, the difference between the two is, indeed, much more conſiderable; the cutting away the angles, adding not a little to the length of time requiſite for a cure; rendering the ſore much larger, and more troubleſome; and ſubjecting the patient, very often, to great inconvenience, ariſing from the kind of cicatrix which it neceſſarily produces.

Mr. De la Faye, after having deſcribed the manner of paſſing the probe, or the fulcated director, in order to make a ſimple longitudinal diviſion

diviſion of the inteſtine, adds,---" On ne ſe contente pas aujourdhui " de couper la fiſtule entre les deux extremités du ſtilet; on fait une " inciſion qui renferme dans ſon circuit ces deux extremités: et par le " moyen de laquelle, en les tirant en meme temps, on emporte toute " la fiſtule, qui ſe trouve comme embrochée dans l'anſe formée par " cette inſtrument: * on fait enſuite a la partie inferieure de la playe, " une inciſion, qui ſert comme de goutiere à la ſuppuration." 'The 'preſent practitioners do not content themſelves with merely dividing 'the ſinus; but making uſe of the probe as a kind of loop, they pull 'the parts towards them; and then, by a free and almoſt circular in-'ciſion, cut out the whole fiſtula; after which, they make ſuch an 'inciſion in the lower part, as may beſt ſerve the purpoſe of a free 'diſcharge of matter.'

This

* It might be ſuppoſed, from the manner in which this is delivered, that the method was a modern invention: whereas it is, on the contrary, a very old one. Guido's deſcription of it is as follows.——" Penetrantes fiſtulæ (ſecundum Rhazin) non ſanantur, " niſi cum ligatione, et extractione cum falce.

" Modus inciſionis cum falce eſt, quod extrahatur cum chordula immiſſa extra quan-" tum poſſibile erit inteſtinum comprehenſum per ipſam chordulam; et poſt intromitten-" dum poſitum ab Albucaſi bene ſcindens; totum illud, quod comprehenſum eſt cum " chordulâ ſcindatur; ita, quod chordula expediatur." GUIDO.

So alſo Brunus, having deſcribed the method by ligature, goes on to that by inciſion.

" Operatio autem ſecundi modi eſt, ut non ſtringatur ſpacus [the ligature] ſicut nar-" ratum eſt ad incidendas carnes, ſed ligentur tantum ipſius extremitates ſimul, et ut ſit iſte " ſpacus fortior et groſſior illo qui carnes incidit: deinde extende ſpacum cum unâ ma-" nuum tuarum verſus exteriora, et cum alterâ manu tuâ incide illas carnes quæ ſunt " inter illas duas extremitates ſpaci, cum inſtrumento curvæ extremitatis."

This is exactly, what is now by ſome called, Cutting upon the Wire; and I have ſeen, in the hands of a very ingenious gentleman, a ſingle inſtrument, very capable of executing all this purpoſe; that is, of cutting out ten times as much as ever can be neceſſary.

The ſame account is to be found in Lanfranc, Rogerius, and moſt of the old writers; who, in this, as in moſt other inſtances, have done little more than merely copy each other.

This method, as far as regards the mere operation, is, certainly, preferable to that with the forceps and ſciſſars; but it produces the ſame deſtruction of the parts, and the ſame future inconveniencies; like that, it is built upon a ſuppoſition, that ſuch a removal of parts is neceſſary toward a cure; and, therefore, like that, ſtands upon a ſuppoſition which is not true.

The ſame gentleman, in another paragraph, admits, that this method of operating is not proper in certain circumſtances: (which circumſtances cannot poſſibly render the diſeaſe eaſier of cure); and in ſuch caſe, adviſes the mere longitudinal ſection of the gut.---" Ne-" anmoins, le canal fiſtuleux pourroit être ſi profond, ou le trou ex-" terieur de la fiſtule dans un lieu de la feſſe ſi eloigné du fondement, " qu' en faiſant l'operation de la maniere qu' on vient de decrire, on " emporteroit une trop grande portion de la ſubſtance. En ce cas on " ouvre ſur une fonde canelée la fiſtule dans ſa longueur," &c. " Ne-' verthelefs, the fiſtulous hollow may be ſo deep, or the external ori-' fice in the buttock at ſuch diſtance from the anus, that, if the ope-' ration be performed in the manner juſt deſcribed, it would occaſion ' too large a loſs of ſubſtance. In this caſe, the ſinus muſt be opened ' lengthways, by means of a grooved director.' Mr. De la Faye does not, indeed, ſay, in expreſs terms, that this longitudinal diviſion will be ſufficient for a cure; but I will venture to ſay for him, that I know, from repeated experience, that it will. The obſervation, therefore, which this gentleman has made, concerning the loſs of ſubſtance, is not only juſt and true in itſelf; but it is alſo an obſervation, which, if properly attended to, will lead to a truth, which he does not ſeem to have been ſufficiently apprized of; which is, that every operation of this ſort, (that is, every extirpation of parts,) is unneceſſary, and therefore wrong. Large hollows, in which conſiderable quantities of matter have been formed; whoſe extent, with regard to the inteſtine,

is

is deep; and whoſe orifice is in the buttock, at a diſtance from the anus, have always more induration about them, and diſcharge a larger quantity of gleet, than thoſe which are ſmaller, more ſhallow, and thinner; and whoſe matter has burſt its way out, by an opening near to the fundament. If the former then are curable, by a mere longitudinal diviſion of the inteſtine, without exciſion, which Mr. De la Faye, by his preſcription, in ſome meaſure allows; (and which is a truth beyond contradiction or conteſt) ſurely extirpation muſt be unneceſſary in the latter. It can hardly be ſuppoſed, that nature will be able to do more in caſes attended with increaſed difficulties and impediments, than in thoſe where every circumſtance is more favorable, every hindrance leſs. And yet, whoever cuts away a portion of the inteſtine in the latter, and omitting, or not performing, ſuch operation in the former, finds that they will do well without it, muſt reaſon in that manner, and ſhut his eyes againſt conviction.

Mr. De la Faye is, indeed, ſenſible of the ill conſequences which ſuch treatment produces, and has endeavoured to guard againſt them as well as he can; but whoever has been ſo unfortunate, as to have been ſo treated, knows, that all theſe precautions are, in general, ineffectual: his words are,---"Lorſqu'on a coupé dans l'operation une "portion conſiderable du bord de l'anus, & que les chairs commen-"cent a remplir le vuide, il faut mettre dans l'ouverture de cette par-"tie une tente, un peu courte, qui en empechant le retreciſſement lui "conſerve ſon diametre."---'When a conſiderable portion of the 'verge of the anus has been cut away in the operation, and new fleſh 'begins to fill up the void ſpace, a ſhort tent ſhould be introduced into 'the part, in order to hinder the fundament from contracting in its 'diameter;'---but which it will often do, in ſpite of all the tents in the world.

Mr.

Mr. Le Dran, a writer and practitioner of conſiderable figure in Paris, and whoſe works have been tranſlated into Engliſh by Mr. Gataker, is very particular with regard to this diſeaſe, and the method of treating it; and is alſo an advocate for this exſcinding ſcheme, even more than Mr. De la Faye.

This gentleman uſes the term fiſtula, without any regard to the date of the diſeaſe, or any attending circumſtances, except the common and almoſt neceſſary appearances, when an abſceſs of this kind has been ſuffered to burſt, viz. a ſmall orifice, ſome degree of induration, and a diſcharge of fæcal matter: all which are circumſtances, that neceſſarily accompany every abſceſs formed in the neighbourhood of, and piercing, the rectum: and this, at the very firſt hour, full as much as at any time after. So that, according to this manner of uſing the term, an abſceſs ſo circumſtanced, and a fiſtula, are ſynonimous: which, I apprehend, cannot be, without confounding together two things materially and eſſentially different from each other. He ſays, ---" Je vois un petit trou a coté de l'anus, je ſens des calloſités autour, " et je vois ſortir par ce trou une aſſez grande quantité de pus; je " conclus que c'eſt une fiſtule qui peut-etre intereſſe l'inteſtin rectum. " Je vois ſortir par ce trou un peu de matiere ſtercorale delayée; ou " bien le malade me dit, qu'il en ſorte quelquefois; je ne doute plus " que le boyau ne ſoit percé; et je dis que c'eſt un fiſtule complette." ---' When I ſee a ſmall orifice by the ſide of the anus, and perceive a ' hardneſs round about it, and find that it diſcharges a large quantity ' of matter, I conclude, that it is a fiſtula, which, moſt probably, ' affects the rectum. When I find ſomething like fæces diſcharged ' from this orifice, or mixed with what is diſcharged from it; or the ' patient informs me, that ſuch kind of diſcharge is made; I call the ' diſeaſe a complete fiſtula.'---This is, undoubtedly, the general cuſtom; notwithſtanding which, the diſeaſe, in the ſtate Mr. Le Dran has

has deſcribed it, may have no one true characteriſtic of a fiſtula; nor require any of that treatment, which is ſaid to be neceſſary and proper in ſuch caſe. A matter of great conſequence to the patient.

In the operative part of the treatment of the diſeaſe, Mr. Le Dran warmly eſpouſes the free removal, or extirpation of parts.---" S'il ne " l'eſt que d'une coté, il faut emporter ce qui eſt denué; certain que " ſi l'on le laiſſe, la playe reſtera fiſtuleuſe; et qui ſi l'on ſe contente " de le fendre, les deux lambeaux flottans dans la playe rendront les " panſemens tres difficiles, et meme la playe fiſtuleuſe."---' If the ' diſeaſe be on one ſide only, all that part of the inteſtine, which is ' laid bare by the matter, ought to be cut away; becauſe, it is cer- ' tain, that if ſuch part be left in the wound, it will become fiſtulous; ' and that, if we only make a ſimple diviſion, the divided lips will ' hang looſe and floating in the wound; will render the application of ' dreſſings difficult, and make the ſore fiſtulous.'

Theſe are Mr. Le Dran's words and ſentiments: and this the method of practice, which is taught, and followed by the majority.

That ſome ſmall part of this proceſs may be neceſſary in the true, old, callous, fiſtulous ſore, I do not deny; (though not even then, in any degree equal to the above direction) but that the whole of it is abſolutely unneceſſary in the recent abſceſs, I can, from repeated experience, venture to affirm: That mere diviſion of the naked inteſtine (if ſuch diviſion be dreſſed properly) will not render a ſinus fiſtulous, which was not ſo before, is a truth as clear as any in Euclid; and, indeed, it is to me matter of wonder, how ſuch opinion could ever be embraced. The diviſion of the inteſtine, by laying the cavity of the ſinus open, deſtroys or removes the principal circumſtance which can make ſuch a caſe reſemble a fiſtula; by converting a hollow ſinous ulcer into an open one: and with regard to the other characteriſtic, induration, certain it is, that if the knife does not find the parts hard,

it cannot poſſibly make them ſo; on the contrary, it puts them under a neceſſity of undergoing ſuch a degree of ſuppuration, as, if properly managed, will prove the cure of that very induration.

Mr. Le Dran ſays, "That the lips of the wound will hang floating; "will render the dreſſings difficult, and the ſore fiſtulous." I think, I underſtand what Mr. Le Dran means: the tumid lips of the recently-made inciſion, will, certainly, be a hindrance to the cramming in a quantity of dreſſings; and ſuch attempts will, as certainly, increaſe the tumefaction and hardneſs; and, if perſiſted in, with the help of a little eſcharotic, may bid fair for producing a callous ſore: but all this lies at the door of the ſurgeon, and not of the caſe: all this is unneceſſary, improper, and pernicious. I cannot, under ſuch treatment as I would call good ſurgery, conceive the tumefaction, and inflamed ſtate of the lips of the divided gut to remain more than a few days; during which time, it muſt be the buſineſs of art to appeaſe, relax, and produce ſuppuration; which, if properly executed, will infallibly prevent all tendency towards a fiſtulous ſore, inſtead of producing one.

That the lips of the wound in the rectum will not ſeparate from each other, in ſuch manner as to admit a large quantity of lint; and that the membranous ſtructure of the part will render ſuch lips large, and ſubject to inflammation, until ſome degree of ſuppuration comes on, is beyond all doubt; but neither of theſe are reaſons for extirpation: for the inflammation will be full as high where a piece is cut out, as where the part is merely divided, and all the ſymptoms of pain and uneaſineſs full as great, if not greater: and with regard to the impracticability of putting in a quantity of dreſſing, I repeat, that it is not at all neceſſary; but that, on the contrary, it is wrong, and tends only to miſchief. A doſſil or two of fine lint ſhould, immediately after the inciſion is made, be placed between the divided

lips,

lips, by paſſing them from the cavity of the rectum, laterally into the cavity of what before ſuch diviſion was the ſinus: theſe ſhould not be removed, until either the beginning ſuppuration, or the neceſſary action of the gut in going to ſtool, throws them out; when their place ſhould be ſupplied with others of equal ſize, imbued with an eaſy ſoft digeſtive.

If the patient be in health, the lips of this wound, like thoſe in all other membranous parts, after they have been crude, tumid, and inflamed, and have, for a few days, diſcharged a thin, diſcoloured kind of gleet, will begin to ſuppurate: if ſuch ſuppuration be by proper, that is, by ſoft, gentle treatment, encouraged, not only the tumefaction and inflammatory hardneſs brought on by the inciſion, will ſoon ſubſide and diſappear, but alſo all the induration which attended the ſinus before it was laid open.

On the other hand, if the patient's habit be bad, and no ſuch inflammatory tumefaction ſucceed to the inciſion; but, inſtead of it, the lips of the wound are ſoft, flabby, and inclining to be livid, the caſe has, undoubtedly, an unpromiſing appearance; but the remedy is not chirurgical: removal of parts will not remove, or amend this ſtate of the ſore, or at all leſſen the hazard ariſing from it: it may, indeed, render the introduction of dreſſings ſomewhat more eaſy; but it neither will, nor can, make ſuch dreſſings at all more effectual, or more conducive to the one end which ought to be purſued.

In ſuch caſe, the remedy muſt be an internal one; and whoever depends upon externals, will give his patient much unneceſſary trouble, and only waſte his time.

The truth is, this doctrine of the neceſſity of cutting out a portion of the inteſtine, (though it is as old, or, perhaps, older than Celſus *)

* 'In hæc genera demiſſo ſpecillo, duabus lineis incidenda cutis eſt, ut media inter 'eas habenula tenuis admodum injiciatur, ne protinus ora coeant, ſitque locus aliquis linimentis,'

is almoſt a neceſſary conſequence of the manner in which theſeſores, (upon a ſuppoſition of their being fiſtulous) almoſt always have been, and do ſtill continue to be, generally treated---I mean, the cuſtom of cramming them full of lint; and of charging that lint with medicines, which, though uſed under more gentle appellations, are really eſcharotics. Upon this plan, I am willing to allow, that the lips of the divided inteſtine will be in the way; and prove a conſiderable impediment in the introduction of ſuch dreſſings; and I will alſo allow, that by means of ſuch medicines, the whole wound will be irritated, inflamed, and hardened; and ſo far wear the appearance of being fiſtulous, as neither to yield good matter, nor be diſpoſed to heal; at leaſt, not till nature has got the better of the ſurgeon.

What Mr. Le Dran ſays, in another paragraph of the ſame tract, may ſerve to ſtrengthen what I have aſſerted.---" S'il eſt denué des " deux cotés, il faut pour le conſerver, faire à l'autre feſſe une contre- " ouverture, pres de là, & la faire aſſez longue pour pouvoir panſer " commodement; puis ecouter ce que la nature fera pour lui."---' If ' the gut be denuded on both ſides, a counter-opening ſhould be made ' on the other ſide, long enough to permit, conveniently, the appli- ' cation of dreſſings; and then we ſhould wait, and ſee what nature ' will do toward aſſiſting the patient.'

A very important piece of advice this; worth all the directions for the extirpation of parts; and which, if timely and duly attended to, will, generally, render all ſuch directions quite unneceſſary.

It is, indeed, ſomewhat remarkable, that the ſame gentleman ſhould give the above very excellent advice; and, almoſt in the ſame breath, add, what follows.---" S'il eſt denué exactement dans toute ſa " circonference, & que ſon depouillement ne s'etend pas plus haut

que

' linimentis, quæ quam pauciſſima ſuperinjicienda ſunt, omniaque eodem modo facien- ' da, quæ in abſceſſibus poſita ſunt." CELSUS.

" que les releveurs de l'anus, il faut emporter tout ce qui eſt denué." ---'If the inteſtine be bared by the matter all round, and this denuda-' tion does not extend above the levatores ani, all that part which is ' ſo bared, ſhould be extirpated.' That is, the whole verge of the anus: all that part which is ſo formed by nature, as, by its relaxation, to permit the largeſt and moſt ſolid ſtool to paſs out; and, by its conſtriction, to detain and keep in, for a while, the moſt fluid, ſharp, and ſtimulating one; all that part, which, when deſtroyed or removed, not only never can be renewed, but never can have its place ſupplied, nor its office properly executed by what muſt ſucceed to it: ſurely it may, with great juſtice, be ſaid, that the laſt ſtate of a man in theſe circumſtances is worſe than the firſt; and that his remedy proves a moſt afflicting diſeaſe.*

Prejudice

* In the Memoirs of the French Academy, is a caſe of this kind, related by Mr. Faget. The patient had an abſceſs on each ſide of the rectum; which, before Mr. Faget ſaw it, had been opened without meddling with the gut.

The two abſceſſes communicated by a hollow or ſinus under the os coccygis; the depth in all the upper part is deſcribed to be about two inches, but in the perineum the ſkin only was ſeparated; that is, the hollow was quite ſuperficial. After five months attendance, during which time the rectum was never divided, the patient was brought to Paris; where, in a conſultation between the Meſſieurs Faget and Boudon, it was agreed, that the only method of obtaining a cure, muſt be by extirpating, or cutting away the whole extremity of the inteſtine, as deep as it was laid bare; which operation is thus deſcribed—" Je perçai d'abord le rectum de droit à gauche, avec un gros ſtilet; avec le-" quel je fis l'anſe. Je commençai a couper le lambeau de peau qui tenoit au coccyx, & " je continuai tout le long d'attache des muſcles releveurs juſqu' à la parte moyenne du " perinée, ou il y avoit beaucoup de dureté, & de calloſitez, que j'emportai; je panſai " la playe avec un gros bourdonnet, & des lambeaux de linge trempés dans l'eau alumi-" neuſe, le tout ſoutenu par pluſieurs compreſſes & un bandage convenable, &c." Mr. Faget ſays, that the patient was ſix months longer in getting well. To which, I muſt take the liberty of adding, that he was much more fortunate than ſome whom I have ſeen under the ſame treatment. The relator, in the reſt of the memoir, endeavours to

explain

Prejudice often prevents us from ſeeing truth, though it ſtands before us: for Mr. Le Dran, though he ſo ſtrongly recommends the extirpation of a portion of the inteſtine, yet has made the ſame obſervation on thoſe fiſtulæ which run too high for extirpation, as Mr. De la Faye: he has very juſtly remarked, that they will do well without ſuch operation: and has given ſo good, and ſo true an account of the matter, that it is amazing he ſhould not ſee, that the ſame method, both of reaſoning and of acting, was equally applicable to both caſes; that is, to thoſe fiſtulæ which do not extend ſo high, as well as to thoſe which do: he ſays,---"On trouve ſouvent des ſinus qui mon-
" tent fort haut le long du rectum; & même vers la veſſie, dans la
" tiſſu cellulaire qui entoure ces parties: ſinus qui ſemblent devoir
" rendre ces maladies incurables, parcequ'ils vont plus haut que le
" doigt ne peut aller. Mais l'experience m'appris que ces ſinus ſe
" rempliſſerent preſque toujours dans les ſix premiers jours---ou pour
" parler plus juſtement, que les chairs ſe rapprocherent, n'ayant étés
" qu' ecartés par le pus, & non fondues."---'Sometimes we meet
' with ſinuſſes, which run ſo high in the tela celluloſa, along the rec-
' tum, and up toward the bladder, that one would be inclined to be-
' lieve them to be incurable, from their being beyond the reach of
the
explain the method by which the new anus became capable of executing the office of the old one; and very juſtly ſeems to wonder, why the ſurgeon, who firſt had the care of the patient, and who firſt opened the abſceſſes, did not divide the rectum in each of them. Mr. Faget's ſurprize, and his cenſure on the operator, are certainly well founded: but I muſt own that it ſeems to me to be full as extraordinary, that he, who ſaw the propriety of its having been done before, ſhould not, at leaſt, try what it would do afterward. If this experiment had been made, and the caſe properly conducted, I make little doubt that the patient might have been cured without the loſs of his fundament. A loſs, which, though poſſibly in youth and health he might not be ſo ſenſible of as to alarm him; yet in age, or a ſtate of debility, muſt prove a very grievous one.

the finger; * but I have learned from experience, that theſe ſinuſes fill up within the firſt ſix days. Or, to ſpeak more properly, that the

* It is hardly decent for a ſurgeon to ſay it; but I am much inclined to believe, that this circumſtance of the ſinus being out of the reach of the finger, is the very individual one, on which the expedition of the cure (that is, the ſhortneſs of the time, in which Mr. Le Dran ſays, that he finds theſe cavities filled up) depends. For if they were within the reach of the finger of an operator, who thinks as this gentleman writes, he would immediately go to work with his inſtruments; and if he did nothing worſe, muſt neceſſarily prolong.—It has always been a very generally-received opinion, that if the hollow of the ſinus be higher than a finger in ano can reach, all chirurgic operation is fruitleſs. There is hardly an author ancient or modern, who has not inculcated this doctrine, though daily experience might have convinced them of its falſhood.

Among the reſt, Heiſter has given us his opinion on this ſubject, in the moſt poſitive manner:—"Et ſane niſi digitus, in anum depreſſus, fiſtulæ os attingere valet, verum illud adhuc profundius latet, ſine vitæ periculo, ob metum lædendarum venarum majorum, ſectio inſtitui nequit; adeoque tunc parum plerumque, imo vero nihil omnino chirurgi artificia proficiunt," &c.

This, which, as I have obſerved before, is the doctrine of all our writers, has always ſtood upon the ſame principle, viz. the fear of hæmorrhage; and all the propagators of it have always ſuppoſed, that nothing but a diviſion of the whole ſinus could poſſibly produce a cure; which ſuppoſition is, by no means, true.

When the caſe is an abſceſs formed in the cellular membrane, the length of the ſinus muſt be proportioned to the diſtance of the ſeat of ſuch abſceſs from its external orifice: this is ſometimes conſiderable, quite out of the reach of the finger in ano; but it does, by no means, follow, that either this ſinus muſt be divided through its whole length; or that the diſeaſe cannot be cured; and, therefore, that it is better not to meddle with it at all. Frequent experience proves the contrary. If all that part of it, which is within the reach of the finger in ano, (that is, all that part of it which is principally affected by the action of the muſcles of the anus and rectum) be fairly divided; if the wound, ſo made, be dreſſed in ſuch manner, as to produce no inflammatory irritation; if it be not frequently poked into, and examined; and the patient's habit be properly taken care of, the length of the ſinus will add very little to the difficulty attending the cure; all that is out of reach will collapſe and heal; and the caſe will very ſoon be exactly the ſame, as if the whole hollow was within the finger's length.

The

'the membranes, which have been only ſeparated, and not diſſolved 'by the matter, again approach each other.'---

Can any man give a more rational or more true account of this matter, or produce a ſtronger argument againſt cutting out a part of the inteſtine? The operator's finger cannot reach the upper part of the ſinus, and, therefore, he cannot extirpate: but ſinuſes, which, by being out of reach, cannot be extirpated, do well without it, merely by the help of nature; who, when the matter is diſcharged, and ſuch an opening made, as prevents any future lodgment, brings the ſides of the cavity together, and endeavours thereby to obliterate it. It is true, that ſhe can but ſeldom accompliſh this end entirely; I mean, throughout the whole length of the ſinus; the lower part generally remaining open, though contracted to narrow compaſs: this it is, moſt frequently, abſolutely neceſſary to divide, in order to obtain a cure; but that part of the ſaid ſinus, (if there be any) which is out of the reach of the inſtrument guided by the finger in ano, is not a matter of that conſequence, which it is ſuppoſed to be. If the lower part, or what is fairly within reach, be divided, ſuch diviſion will, in moſt

The probability of an hæmorrhage from the large veſſels about the upper part of the rectum, is a thing which ought, by all means, to be avoided, as it might give a great deal of trouble, and create ſome hazard; but the operation, which would induce ſuch apprehenſion, being quite unneceſſary, this riſque is out of the queſtion.

The laſt-mentioned author (Heiſter) although in general a very exact and careful writer, ſeems, in his obſervations on this complaint, rather to have copied what our predeceſſors have written on it, than to have given us what his own experience might have furniſhed him with: the latter would have convinced him, that all his preparation by bleeding, purging, &c. before the operation, is quite unneceſſary; that the blind fiſtulæ are very little, if at all, more difficult of cure than the open ones; and that the diſeaſe in queſtion admits of being treated, and cured, in pregnant women, as perfectly and as eaſily as in thoſe who are not ſo. The contrary doctrines are, certainly, no rules of good practice, however venerable they may be from their antiquity.

moſt caſes which are curable at all, be fully ſufficient for a cure, as I have often and often experienced. I know that this is contrary to the generally-received doctrine; but I know it is true, and am much inclined to believe, that the ſuppoſition of the neceſſity of laying open the whole ſinus, however deep it may run, has contributed greatly to the fatigue and hazard which many people have unneceſſarily undergone in this diſeaſe: it has occaſioned ſuch poking with long probes, and ſuch cramming in of tents and dreſſings, as have proved extremely pernicious; and brought on ſymptoms and trouble, which would not have attended the ſame caſes under other management.

One word more, and I have done with this part of my ſubject. As I have given my opinion ſo freely, concerning the practice of exciſion, a repreſentation of the inconveniences likely to ariſe from it, might, from me, be thought to be an exaggeration: I ſhall, therefore, take the liberty, once more, to quote Mr. Le Dran; who, conſidered as a patron of the practice, cannot be ſuppoſed to overcharge it. He ſays, ---" Cette grande playe ſera dans les commencemens pancée comme " les autres; mais quand les chairs commencent a ſe rapprocher, elle " demande des attentions particulieres; ſans leſquelles, l'anus devi- " endroit ſi etroit que les excremens ne pourroyent y paſſer; pour peu " qu'ils ont de conſiſtence. Il faut donc alors metre juſque dans le " rectum une tente de linge, liſſe, aſſez longue, & aſſez groſſe, pour " entretenir le paſſage. Il faut même ſur le fin, ſupplier a cette tente, " par une eſpece de ſuppoſitoire d'yvoire, percé en forme de cannule; " & avoir ſoin de la bien aſſujettir par la bandage, a fin qu'elle ne ſorte " pas. La cicatrice etant faite, il faudra que le malade porte cette " ſuppoſitoire encore pres d'un an; ſans quoi la cicatrice ſerreroit " l'anus de plus en plus."---' This large wound ſhould, at the firſt, ' be dreſſed like any other; but when the ſides begin to approach each ' other, it will then demand particular attention, leſt the fundament

'ſhould become ſo contracted, that the fæces, if they be at all hard, 'cannot be expelled. Therefore, in order to keep the paſſage of a 'proper ſize, a ſmooth tent made of linen ſhould be introduced; 'which tent ſhould be of ſuch a ſize and length, as to ſerve the pur-'poſe for which it is intended. Toward the cloſe of the cure, in the 'place of this, an ivory ſuppoſitory, made in the form of a cannula, 'muſt be ſubſtituted, and kept conſtantly in, by means of a proper 'bandage. Which ſuppoſitory muſt be worn for near a year after the 'ſore is perfectly healed; otherwiſe the cicatrix will contract the anus 'ſtill more and more every day."*

This is what is called cutting for a fiſtula: this is the operation, which they, who have undergone it, do ſo pathetically deſcribe and lament; and what they, who have the misfortune to be afflicted with the diſeaſe, do (from the account of others) ſo fearfully dread. It is true, that it has the ſanction of ſeveral eminent writers; that it is practiſed by many ſurgeons; and that it is recommended and exhibited by anatomico-chirurgical teachers; but notwithſtanding theſe authorities, I ſhall not ſcruple to ſay, that it is cruel, unneceſſary, and wrong.

That, by theſe means abſceſſes, juxta anum, and fiſtulæ in ano, (as they are called) are cured, I make no doubt; nay, I know that they are: but I alſo know from repeated experience, that they are curable by means, which are more expeditious, more eaſy, and neither hazardous in the uſe, nor productive of evil in the event. I mean, by mere ſimple diviſion of all that part of the ſinus which is within reach;

* To which he might have added, that when all this is done, and every precaution of this kind uſed, the patient will always find it difficult and painful, and ſometimes abſolutely impoſſible to retain a looſe ſtool;—an evil ſtill greater than the trouble of expelling a hard one.

reach; by ſoft, gentle treatment of the ſore after ſuch operation; and by proper care of the habit.*

The hæmorrhage, (to ſay nothing of the pain) which now and then attends the extirpation of a large piece of the inteſtine and fundament, is alarming, both to weak minds, and to weak bodies; and the inconveniences ariſing from loſs of ſubſtance about the verge of the anus, either in ſtrong exerciſe, in the retention of looſe ſtools, or the expulſion of hard ones, are ſo great, that I have known ſeveral people, who have daily, and ſincerely wiſhed for their uncut fiſtulæ again: and who, either from pain, or uncleanlineſs, or both, have been rendered truly unhappy.

In ſhort, I can venture to aſſert, from many years experience, on a great variety of ſubjects, that when the diſeaſe is curable by chirurgic

 art,

* When the habit is out of order, as it moſt frequently is in perſons afflicted with this diſorder, if recourſe be not had to internals, the ſurgeon will gain little ground. This is a circumſtance which ought always to be attended to; and it is, in ſome meaſure, owing to a want of due regard to it, that we find ſuch a farrago of different dreſſings; ſuch remedies for fungous, for foul, for callous ſores, &c. Theſe diſeaſed appearances and circumſtances moſt frequently proceed from diſorders in the habit; and if that be not corrected, the ſame appearances will continue, notwithſtanding all our eſcharotics, detergents, digeſtives, incarnatives, &c. &c. &c.

In cold, debauched, lax, or ſluggiſh habits, if the patient be not warmed by aromatics, and braced by the bark, theſe caſes will often prove tedious and troubleſome.

From the induration of the parts about, from the face and color of the ſore, and from the diſcoloured gleety diſcharge, calloſity, latent miſchief, and undiſcovered ſinuſes will be ſuſpected; whereas, in truth, neither one nor the other are the cauſe of ſuch diſeaſed appearances. The adminiſtration of proper remedies will, moſt commonly, in a few days, produce ſuch an alteration, as the whole art of ſurgery could not (by mere externals) bring about in as many weeks, if at all. Many and many a ſore of this kind have I ſeen brought into the hoſpital, which has had all theſe diſagreeable appearances, which has long, and fruitleſly, been treated with all the variety of externals; and which a decoction of the bark and rad. ſerpentariæ has, in a very ſhort time, put into ſuch a condition, as not to want any thing but dry lint.

art, the method which I have propoſed, will, with more eaſe, expedition, and certainty, attain that end, than the method by extirpation; and that, without producing any of thoſe very diſagreeable circumſtances, which Mr. le Dran has ſo juſtly deſcribed.

And for the truth of this aſſertion, I appeal to all thoſe (many in number) who have for theſe ten or twelve years paſt, attended St. Bartholomew's-Hoſpital.

SECT. VI.

HITHERTO I have conſidered the diſeaſe either as an abſceſs, from which the matter has been let out by an inciſion, made by a ſurgeon; or from which the contents have been diſcharged by one ſingle orifice, formed by the burſting of the ſkin, ſomewhere about the fundament.---I am now to take notice of it, when, inſtead of one ſuch opening, there are ſeveral.

This ſtate of the caſe generally happens, when the quantity of matter collected has been large, the inflammation of conſiderable extent, the adipoſe membrane very ſloughy, and the ſkin worn very thin before it burſt.---It is, indeed, a circumſtance of no real conſequence at all; but, from being miſunderſtood, or not properly attended to, is made one of additional terror to the patient, and additional alarm to the inexperienced practitioner: for it is taught, and frequently believed, that each of theſe orifices is an outlet from, or leads to, a diſtinct ſinus, or hollow; whereas, in truth, the caſe is, moſt commonly, quite otherwiſe; all theſe openings are only ſo many diſtinct burſtings of the ſkin covering the matter; and do all, be they few, or many, lead, and open immediately into, the one ſingle cavity of the abſceſs: they neither indicate, nor lead to, nor are cauſed by diſtinct

ſinuſes;

ſinuſes; nor would the appearance of twenty of them (if poſſible) neceſſarily imply more than one general hollow.

If this account be a true one, it will follow, that the chirurgic treatment of this kind of caſe ought to be very little, if at all, different from that of the preceding; and that all that can be neceſſary to be done, muſt be, to divide each of theſe orifices, in ſuch manner, as to make one cavity of the whole. This the probe knife will eaſily and expeditiouſly do; and, when that is done, if the ſore, or, more properly, its edges, ſhould make a very ragged, uneven appearance, the removal of a ſmall portion of ſuch irregular angular parts, will anſwer all the purpoſes of making room for the application of dreſſings, and for producing a ſmooth, even cicatrix, after the ſore ſhall be healed.

When a conſiderable quantity of matter has been recently let out, and the internal parts are not only in a crude, undigeſted ſtate: but have not yet had time to collapſe, and approach each other; the inſide of ſuch cavity will appear large; and, if a probe be puſhed with any degree of force, it will paſs in more than one direction into the cellular membrane, by the ſide of the rectum. But let not the unexperienced practitioner be alarmed at this, and immediately fanſy that there are ſo many diſtinct ſinuſes; neither let him, if he be of a more hardy diſpoſition, go to work immediately with his director, knife, or ſciſſars: let him inlarge the external wound, by making his inciſion freely; let him lay all the ſeparate orifices open into that cavity; let him divide the inteſtine lengthwiſe by means of his finger in ano; let him dreſs lightly and eaſily; let him pay proper attention to the habit of the patient; and wait, and ſee what a few days, under ſuch conduct, will produce. By this, he will frequently find, that the large cavity of the abſceſs will become ſmall and clean; that the induration, round about, will gradually leſſen; that the probe will not

paſs

paſs in that manner into the cellular membrane; and, conſequently, that his fears of a multiplicity of ſinuſes were groundleſs. On the contrary, if the ſore be crammed, or dreſſed with irritating, or eſcharotic medicines, all the appearances will be different: the hardneſs will increaſe, the lips of the wound will be inverted, the cavity of the ſore will remain large, crude, and foul; the diſcharge will be thin, gleety, and diſcoloured; the patient will be uneaſy and feveriſh: and, if no new cavities are formed by the irritation of parts, and confinement of matter; yet the original one will have no opportunity of contracting itſelf; and may, very poſſibly, become truly fiſtulous.

I will not ſay, that there never is more than one ſinus, running along the ſide of the inteſtine (I mean, on the ſame ſide) but I will venture to aſſert, that, for one inſtance, in which the caſe is really ſo, forty are ſuppoſed, and talked of. Diſtinct and ſeparate openings in the ſkin, from the ſame cavity, or ſinus, are common; but perfectly diſtinct ſinuſes, running along the inteſtine, on the ſame ſide, are very far from being ſo; they are very uncommon.

I ſhould be ſorry to have ſuch a miſconſtruction put upon what I have ſaid, as to have it ſuppoſed, that I made light of a diſeaſe, which, every body knows, is, ſometimes, attended with very troubleſome circumſtances: or, that I make pretenſion to any particular ſecret method of treating it: or, that I think myſelf more capable of conducting it than the generality of practitioners; as none of theſe are true, I ſhould be ſorry, to have them imputed to me. I do allow, (what is undoubtedly true,) that this diſeaſe, in ſome conſtitutions, and under ſome circumſtances, will engage the attention, and exerciſe the judgment of the beſt and moſt able practitioner; but, on the other hand, I muſt repeat, that a great deal of the trouble, which it is ſometimes attended with, does not ariſe from the diſeaſe itſelf, but from miſconception, and improper treatment.

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I have freely, and without reſerve, related that method of treatment, which I have found to be moſt ſucceſsful; nor do I know any applications, which are at all ſpecific, or more proper for this kind of ſore than for all others, in parts of the ſame ſtructure: the moſt ſimple, and they which give the leaſt pain, are the beſt: neither theſe, nor mere dry lint, ſhould ever be introduced in larger quantity than can be admitted and borne with eaſe; that the ſore may not be diſtended, but a fair opportunity given to nature to contract it gradually.

This every practitioner may be capable of executing, ſince it conſiſts more in abſtaining from doing miſchief, than in doing any thing which may require particular judgment or dexterity. It is true, that the method which I have propoſed, will conſiderably leſſen the chirurgic apparatus of inſtruments and dreſſings; but it will be attended with ſucceſs, and produce that which every patient has a right to expect from his ſurgeon;---a firm cure, in a ſhort ſpace of time, and with the leaſt poſſible fatigue.

It ſometimes happens, that the matter of an abſceſs, formed juxta anum, inſtead of making its way out through the ſkin, externally near the verge of the anus, or in the buttock, pierces through the inteſtine only. This is what is called a blind internal fiſtula: *Fiſtule borgne interne.*

In this caſe, after the diſcharge has been made, the greater part of the tumefaction ſubſides, and the patient becomes eaſier. If this does not produce a cure, which ſometimes, though very ſeldom, happens, ſome ſmall degree of induration generally remains in the place where the original tumor was; upon preſſure on this hardneſs, a ſmall diſcharge of matter is frequently made per anum; and ſometimes the expulſion of air from the cavity of the abſceſs into that of the inteſtine,

ſtine, may very palpably be felt, and clearly heard; the ſtools, particularly, if hard, and requiring force to be expelled, are ſometimes ſmeared with matter; and although the patient, by the burſting of the abſceſs, is relieved from the acute pain which the collection occaſioned, yet he is ſeldom perfectly free from a dull kind of uneaſineſs, eſpecially if he ſits for any conſiderable length of time in one poſture. The real difference between this kind of caſe, and that in which there is an external opening (with regard to method of cure) is very immaterial; for an external opening muſt be made, and then all difference ceaſes. In this, as in the former, no cure can reaſonably be expected, until the cavity of the abſceſs, and that of the rectum, are made one; and the only difference is, that in the one caſe we have an orifice at, or near, the verge of the anus, by which we are immediately enabled to perform that neceſſary operation; in the other, we muſt make one.

Some of the beſt of the modern writers have, I think, repreſented this ſtate of the diſeaſe, in ſuch manner, as to make it ſeem to labour under difficulties, which I cannot ſay that I ever found it really did; and have thereby thrown the appearance of obſcurity and trouble, on what is generally clear, and eaſy.

In Mr. De la Faye's very excellent notes on Dionis, is the following paſſage. "Lorſque les fiſtules n'ont pas d'ouverture externe, & "que rien ne deſigne le lieu où il faut faire l'operation, il y a deux "moyens de le decouvrir. Le premier eſt de l'invention de feu Mr. "Thibaut, qui portoit le doigt index dans l'anus, & le recourboit; "enſuite en le tirant un peu a lui, pour ramener a l'exterieur, le foyer "de la matiere; tandis qu'il preſſoit avec un autre doigt les environs "du fondement: la douleur qu'il cauſoit au malade marquoit le lieu "ou il falloit faire l'inciſion pour rendre la fiſtule complete. Le ſe-"cond eſt de Mr. Petit, qui met dans l'anus pendant vingt-quatre "heures une tente qui touchant l'ouverture de la fiſtule, empeche le

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" pus de s'ecouler, & le ramaſſe en aſſez grande quantité pour faire a " l'exterieur une tumeur, qu' indique le lieu ou il faut faire l'opera- " tion."---' When fiſtulæ have no external opening, and there is no ' mark, whereby to diſtinguiſh the place where the operation ought ' to be performed, there are two methods of diſcovering it; the firſt ' is, that of the late Mr. Thibaut, who put his fore-finger into the ' rectum; and curving it, endeavoured to bring the foyer, (that is, ' the hollow which furniſhes the matter,) nearer to the external part ' of the fundament; while, with his other finger, he preſſed all the ' parts round about: the pain which he, by theſe means, gave to the ' patient, marked out the place where the inciſion ought to be made, ' in order to render the fiſtula complete. The ſecond method is, that ' of Mr. Petit: He put into the anus, for the ſpace of twenty-four ' hours, a tent; which, by ſtopping up the orifice of the fiſtula, hin- ' dered the matter from running out into the cavity of the gut; and ' forced it to be collected in ſuch quantity as to form an external tu- ' mefaction, ſufficient to indicate the place where the operation ought ' to be performed.'

The former of theſe, as far as it depends on that ſingle circum- ſtance, that the point where the pain is felt, is the exact place where the opening ought to be made, is, by no means, to be depended upon: the latter method is operoſe, troubleſome, and, in general, very inſufficient for the purpoſe. If the orifice, through which the matter has made its way, lies high in the inteſtine, a tent cannot be introduced ſo as to preſs againſt it ſufficiently, unleſs it be ſo long, and ſo large, as to occupy the whole cavity of the gut. How fatiguing, and how difficult, the retention of this, for twenty-four hours, muſt be to many people, is eaſy to imagine: if the orifice be near to the fundament, in the lower part of the inteſtine, the poſſibility of clo-

ſing it may be ſomewhat greater; but the inconvenience muſt be nearly the ſame, as well as the uncertainty.

In ſhort, not to enter farther into this totally unneceſſary kind of practice, I would adviſe the man who thinks to try it, to conſider the ſtricture made by the contraction of the verge of the anus; the expanſion of the cavity of the gut, immediately above that ſtricture; the great dilatability of the membranes of the inteſtine, and the uneven, wrinkled ſtate in which it muſt neceſſarily be; and then to reflect, how very unlikely it is, that he ſhould, without filling the whole cavity, ſtop, or block up a ſmall breach, whoſe exact ſituation he cannot know, or learn.

It is true, that by diſcharge of the matter into the cavity of the inteſtine, the fluctuation of it within the abſceſs is no more to be felt; the tenſion ceaſes; the tumor, in great meaſure, ſubſides; and, conſequently, all theſe indications of its ſituation diſappear; but I do not remember ever to have ſeen a ſingle caſe of this kind, in which there was not in the buttock, or near to the verge of the anus, either a remaining diſcoloration of the ſkin; or a hardneſs, or ſomething by which the finger of a careful, judicious examiner, could clearly and certainly find where the diſeaſe was. Each of the circumſtances juſt mentioned, do as certainly point out where the hollow, leading to the ſinus is, as the fluctuation of the matter did before the cavity burſt; and a knife, or lancet, plunged into this (provided it be puſhed deep enough) will never fail to enter the ſaid hollow. When this is done, the caſe becomes what is commonly called complete, and muſt be treated accordingly.

SECT.

SECT. VII.

I Come now to that ſtate of the diſeaſe, which may, truly and properly, be called fiſtulous. This is generally defined, ſinus anguſtus, calloſus, profundus; acri ſanie diffluens: or, as Dionis tranſlates it, "Un ulcere profond, & caverneux, dont l'entrée eſt etroite, "& le fond plus large; avec iſſue d'un pus acre & virulent; & ac-"compagné de calloſités."

Various cauſes may produce, or concur in producing, ſuch a ſtate of the parts concerned, as will conſtitute a fiſtula, in the proper ſenſe of the word; that is, a deep, hollow ſore, or ſinus, all parts of which are ſo hardened, or ſo diſeaſed, as to be abſolutely incapable of being healed, while in that ſtate; and from which a frequent, or daily diſcharge is made, of a thin, diſcolored ſanies, or fluid.

Theſe I ſhall take the liberty of dividing into two claſſes, viz. thoſe which are the effect of neglect, diſtempered habit, or of bad management; and which may be called, without any great impropriety, local diſeaſes: and thoſe which are the conſequence of diſorders, whoſe origin and ſeat is not in the immediate ſinus or fiſtula, but in parts more or leſs diſtant; and which, therefore, are not local complaints.

The natures and characters of theſe are obviouſly different by deſcription; but they are ſtill more ſo in their moſt frequent event: the former being generally curable by proper treatment; the latter frequently not ſo, by any means whatever.

Under the former, I reckon all ſuch caſes, as were originally mere collections of matter within the coats of the inteſtine rectum, or in the cellular membrane ſurrounding the ſaid gut: but which, by being long neglected, groſly miſmanaged; or, by happening in habits which

were diſordered, and for which diſorders no proper remedies were adminiſtred, ſuffer ſuch alteration, and get into ſuch ſtate, as to deſerve the appellation of fiſtulæ.

Under the latter, are comprized all thoſe caſes, in which the diſeaſe has its origin and firſt ſeat in the higher and more diſtant parts of the pelvis; about the os ſacrum, lower vertebræ of the loins, and parts adjacent thereto; and are either ſtrumous, or the conſequence of long and much diſtempered habits: or the effect of, or combined with, other diſtempers, local, or general; ſuch as a diſeaſed neck of the bladder, or proſtate gland, or urethra; the lues venerea, cancers, &c. &c. &c.

Among the very low people, who are brought into hoſpitals, we frequently meet with caſes of the former kind: caſes, which, at firſt, were mere ſimple abſceſſes; but which from uncleanlineſs, from intemperance, negligence, and diſtempered conſtitutions, become ſuch kind of ſores, as may be called fiſtulous.

In theſe the art of ſurgery is, undoubtedly, in ſome meaſure, and at ſome time, neceſſary; but it very ſeldom is the firſt or principal fountain, from whence relief is to be ſought: the general effects of intemperance, debauchery, and diſeaſes of the habit, are firſt to be corrected and removed, before ſurgery can, with propriety, or with reaſonable proſpect of advantage, be made uſe of. If the patient be infected with the lues venerea, that muſt firſt be cured; if he be anaſarcous, or leucophlegmatic, that indiſpoſition muſt be corrected; if he be feveriſh, that heat muſt be calmed; and if he labour under any of the general ill effects ariſing from foul ſkin, dirty clothing, unclean, and unwholeſome lodging, &c. producing pallid countenance, undue ſecretions, loſs of appetite, œdematous legs, intermittent fevers, &c. the ſtate of blood which always accompanies ſuch complaints, muſt be amended before ſurgery can be adminiſtred to any good purpoſe.

poſe. If knife, cauſtic, or whatever other external means are thought proper to be uſed, be applied before ſuch general evils have been corrected, they will do little or no good; and may do much miſchief. On the contrary, when the lues is corrected; when the patient is cool, and gets good ſleep; when the ſecretion of urine is ſo re-eſtabliſhed, the general abſorbent faculty ſo reſtored, and the ſolids ſo braced, that the legs ceaſe to ſwell, and the patient recovers his natural appetite and complexion; we find the local diſeaſe, inſtead of ſtanding ſtill, has almoſt always made great advances towards being cured, by being altered in all the principal circumſtances of induration, crudity, gleet, &c. Whatever chirurgic operation or treatment may now be neceſſary, will, in all probability, ſucceed immediately; whereas, all our attempts before ſuch care, do, and muſt prove fruitleſs.

The ſurgery required in theſe caſes, conſiſts in laying open, and dividing the ſinus, or ſinuſes, in ſuch manner that there may be no poſſible lodgment for matter, and that ſuch cavities may be fairly opened lengthways into that of the inteſtine rectum: if the internal parts of theſe hollows are hard, and do not yield good matter, which is ſometimes the caſe, more eſpecially where attempts have been made to cure by injecting aſtringent liquors, ſuch parts ſhould be lightly ſcratched, or ſcarified, with the point of a knife or lancet, but not dreſſed with eſcharotics; and if, either from the multiplicity of external orifices, or from the looſe, flabby, hardened, or inverted ſtate of the lips and edges of the wound near to the fundament, it ſeems very improbable, that they can be got into ſuch a ſtate as to heal ſmooth and even, ſuch portion of them ſhould be cut off, as may juſt ſerve that purpoſe. The dreſſings ſhould be ſoft, eaſy, and light; and the whole intent of them to produce ſuch ſuppuration as may ſoften the parts, and may bring them into a ſtate fit for healing.

If a looſe, fungous kind of fleſh has taken poſſeſſion of the inſide of the ſinus, (a thing much talked of, and very ſeldom met with) a ſlight touch of the lunar cauſtic will reduce it ſooner, and with better effect on the ſore, than any other eſcharotic whatever.

The method and medicines, by which the habit of the patient was corrected, muſt be continued, (at leaſt, in ſome degree) through the whole cure; and all thoſe exceſſes and irregularities, which may have contributed to injure it, muſt be avoided.

By theſe means, caſes, which, at firſt, have a moſt diſagreeable and formidable aſpect, are frequently brought into ſuch ſtate, as to give very little trouble in the healing.

More trouble muſt be ſuppoſed to attend this kind of caſe, than does a mere ſimple, recent abſceſs; and more time will neceſſarily be required to bring the parts into a kindly ſtate; but, under proper conduct, they will, in general, be found to do well, without any of thoſe operations which mankind have ſuch dread of; and which are, in general, taught and practiſed.

If the bad ſtate of the ſore ariſes merely from the improper manner, in which it may have been treated; I mean, from its having been crammed, irritated, and eroded; the method of obtaining relief is ſo obvious, as hardly to need recital.

A patient, who has been ſo treated, has, generally, ſome degree of fever; has a pulſe, which is too hard, and too quick; is thirſty, and does not get his due quantity of natural reſt. A ſore, which has been ſo dreſſed, has, generally, a conſiderable degree of inflammatory hardneſs round about; the lips and edges of it are tumid, full, inflamed, and, ſometimes, inverted; the whole verge of the anus is ſwollen; the hæmorrhoidal veſſels are loaded; the diſcharge from the ſore is large, thin, and diſcolored; and all the lower part of the rectum participates of the inflammatory irritation, producing pain, bearing-

ing-down, teneſmus, &c. *Contraria contrariis* is never more true than in this inſtance: the painful, uneaſy ſtate of the ſore, and of the rectum, is the great cauſe of all the miſchief, both general and particular; and the firſt intention muſt be to alter that. All eſcharotics muſt be thrown out, and diſuſed; and in lieu of them, a ſoft digeſtive ſhould be ſubſtituted, in ſuch manner, as not to cauſe any diſtention, or to give any uneaſineſs from quantity; over which, a pultice ſhould be applied; theſe dreſſings ſhould be renewed twice a day: and the patient ſhould be enjoined abſolute reſt. At the ſame time, attention ſhould be paid to the general diſturbance, which the former treatment may have created. Blood ſhould be drawn off from the ſanguine; the feveriſh heat ſhould be calmed by proper medicines; the languid and low ſhould be aſſiſted with the bark and cordials; and eaſe in the part muſt, at all events, be obtained by the injection of anodyne clyſters of ſtarch and opium.

If the ſinus has not yet been laid open, and the bad ſtate of parts is occaſioned by the introduction of tents imbued with eſcharotics, or by the injection of aſtringent liquors, (the one for the deſtruction of calloſity, the other for the drying up gleet and humidity) no operation of any kind ſhould be attempted until both the patient and the parts are eaſy, cool, and quiet: cataplaſm, clyſters, reſt, and proper medicines muſt procure this; and when that is accompliſhed, the operation of dividing the ſinus, and (if neceſſary) of removing a ſmall portion of the ragged edges, may be executed, and will, in all probability, be attended with ſucceſs. On the contrary, if ſuch operation be performed while the parts are in a ſtate of inflammation, the pain will be great; the ſore for ſeveral days very troubleſome, and the cure prolonged, or retarded, inſtead of being expedited.

Particular individual caſes may require little particularities in the treatment; but what I have drawn is the general outline. In this, as

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in moſt parts of phyſic and ſurgery, the firſt and great object is, to know what the intention is, which ought to be purſued; when that is clear and determined, a man of any degree of knowledge will ſeldom be at a loſs for materials wherewith to execute it.

Abſceſſes, and collections of diſeaſed fluids, are frequently formed about the lumbal vertebræ, under the pſoas muſcle, and near to the os ſacrum; in which caſes, the ſaid bones are ſometimes carious, or otherwiſe diſeaſed. Theſe ſometimes form ſinuſes, which run down by the ſide of the rectum, and burſt near to the fundament.

The diſcharges from theſe are generally large, fœtid, thin, and ſharp; it is, therefore, no wonder, that the ſinuſes, by which they are made, together with the orifices thereof, become hard and callous; that is, truly fiſtulous; but it muſt be obvious to every one, who will conſider it, that the chirurgic treatment of theſe ſores and ſinuſes can be of very little conſequence towards curing the diſeaſes from whence they ariſe: their ſeat is generally out of the reach either of our inſtruments, or our applications; and their nature is not frequently found to be capable of being altered by medicine. However that may be, certain it is, that what advantage a perſon in ſuch circumſtances is at all likely to receive, is not derivable from ſurgery; but muſt be from medicine, or from more powerful nature.

Perſons, who have long laboured under what is commonly called a cachectic habit, have ſometimes large collections of matter formed in the cellular membrane within the cavity of the pelvis; which, like the preceding, form ſinuſes, and burſt their way out near the anus. Theſe ſinuſes, from the nature of the diſcharge, from the depth of the ſeat of the diſeaſe, and from the length of time which the drain continues, do almoſt neceſſarily become fiſtulous.---Such collections do ſometimes prove ſalutary criſes; though much more frequently they haſten the patient's diſſolution: but be the event which it may, although

although the ſore is certainly fiſtulous, yet can the art of ſurgery do very little, if any material ſervice. If the event be good, the criſis muſt be far advanced, and very nearly determined, before any operation, or even dreſſing (except what is ſuperficial, and merely for the purpoſe of cleanlineſs) can be of any uſe; and if the diſcharge proves too much for the ſtrength of the patient, it is pretty clear, that neither the art of ſurgery, nor indeed any other, can avail him.

On the other hand, if it ſo happens, that nature is ſo powerful, that, by means of this drain, ſhe can free the habit from its former diſeaſed ſtate; or if, by the help of medicine, ſuch alteration can be brought about, the fiſtula will not prove very troubleſome: for the ſame alteration, at leaſt in ſome degree, will be found to have been made in that; and if it be not brought thereby abſolutely into a healing ſtate, yet it will be found to be ſo much altered in its principal circumſtances, that the common method, already laid down, will be fully ſufficient for the completion of a cure.

We are, by authors, very frequently adviſed not to be too haſty in the cure of theſe caſes; as the continuance of the diſcharge may prove beneficial to the patient. That theſe diſcharges are now and then of great advantage, is beyond all doubt; but very happily for ſuch patients, the healing or not healing theſe ſores is very ſeldom within our determination. We may, indeed (and I fear often do) by indiſcreet conduct, prevent a ſore from healing, when it is nature's intention that it ſhould be healed; but when ſhe finds herſelf relieved, or benefited by a diſcharge of this kind, ſhe will generally continue it, in ſpite of our moſt officious endeavours to the contrary.

Cancers and cancerous ſores are ſometimes formed in the cavity, or in the neighbourhood of the rectum, and fundament: in which they make moſt terrible havock, and afford moſt melancholy ſpectacles.

As I do not know what will cure a cancer, I leave the diſcuſſion of this to thoſe who ſay that they do; moſt ſincerely wiſhing, that it was in my power to ſay, that I had, once in my life, known them to have fulfilled their promiſe.

Fiſtulous ſores, ſinuſes, and induration about the anus, which are conſequences of diſeaſes of the neck of the bladder, and urethra, called fiſtulæ in perinæo, require ſeparate, and particular conſideration.

In theſe the external openings, with the ſinuſes leading from them into the cellular membrane, are the leaſt part of the complaint: the ſtricture in the urethra, the induration of the whole neck of the bladder; the hardened fungous, enlarged, or ulcerated ſtate of the proſtate gland; the diſeaſes of the verumontanum, of the veſiculæ ſeminales, and vaſa deferentia, are the great and principal objects of conſideration.

A very ſerious conſideration, they certainly make. Great and manifold are the miſeries which are derived to mankind from theſe cauſes; and much more diligent inquiry do they deſerve, than they have yet met with: but as they do not immediately belong to my preſent ſubject, I muſt omit, or, at leaſt, to another opportunity defer, entering into them.

SOME FEW

GENERAL REMARKS

ON

FRACTURES

AND

DISLOCATIONS.

DISLOCATIONS.

AND

FRACTURES

ON

GENERAL REMARKS

SOME FEW

ON

FRACTURES

AND

DISLOCATIONS.

NO part of ſurgery is thought to be ſo eaſy to underſtand, as that which relates to fractures and diſlocations. Every, the moſt inexpert, and leaſt inſtructed practitioner, deems himſelf perfectly qualified to fulfil this part of the chirurgic art; and the majority, even of theſe, are affronted by an offer of inſtruction, on a ſubject with which they think themſelves already ſo well acquainted.

This is alſo the opinion of a conſiderable part of the people. They regard bone-ſetting (as it is called) as no matter of ſcience; as a thing which the moſt ignorant farrier may, with the utmoſt eaſe, become ſoon and perfectly maſter of; nay, that he may receive it from his father and family, as a kind of heritage. We all remember the great, though ſhort-lived reputation, of the late Mrs. Mapp. We all remember,

remember, that even the abſurdity and impracticability of her own promiſes and engagements were by no means equal to the expectations and credulity of thoſe who ran after her; that is, of all ranks and degrees of people, from the loweſt labourer or mechanic, up to thoſe of the moſt exalted rank and ſtation; ſeveral of whom not only did not heſitate to believe implicitly the moſt extravagant aſſertions of an ignorant, illiberal, drunken, female ſavage; but even ſollicited her company; and, at leaſt, ſeemed to enjoy her converſation.

The deſire of health and eaſe, like that of money, ſeems to put all underſtandings, and all men upon a level; the avaritious are duped by every bubble; the lame and the unhealthy by every quack. Each party reſigns his underſtanding; ſwallows greedily, and for a time believes implicitly the moſt groundleſs, ill-founded, and deluſory promiſes; and nothing but loſs and diſappointment ever produces conviction. Arts, trades, and manufactures, are allowed to be learnt, in general, by thoſe who have employed a proper quantity of time and attention in ſuch purſuits; and it ſeems moſt ſingularly unjuſt, as well as untrue, to ſuppoſe that phyſical people are the only part of mankind who are all either ſo dull as not to be able to learn; or ſo profligately wicked, as not to practiſe their art to the beſt of their judgment, and to the greateſt poſſible advantage of mankind.---Surely there are, and always have been among us, as well as in all other claſſes, men truly able and perfectly honeſt; men, who well underſtand the ſcience which they profeſs; and who practiſe it not only with great ability, but with ſtrict integrity. I cannot be ſuppoſed to ſay or to mean this as a vindication of every individual. Different men have different powers and capacities. The multitude with us, as with all ranks and degrees (not excepting any) will always be deficient. Advancements in knowledge will always be owing to the ingenuity and induſtry of a few particular people; but ſuch advancements will always, in due time,

time, more or leſs influence the reſt. They have ſo done; and notwithſtanding that there remains a great deal yet to be done, to bring ſurgery to that degree of perfection of which it is capable, yet, whoever will compare the preſent practice of it with that of a very few years ago, cannot juſtly, or with any degree of candor, withhold his commendation from his contemporaries.

I remember, ſome years ago, to have heard a judge from the bench tell a jury, that he believed a country bone-ſetter knew full as much, if not more of the matter of his own buſineſs, than any, the moſt eminent ſurgeon in the kingdom. I will not enter into a diſquiſition concerning the rightneſs of a judge's opinion. Perhaps his lordſhip might very little underſtand the thing concerning which he decided ſo peremptorily; without either injuſtice or partiality, I may certainly ſuppoſe him to have been a much more able lawyer than ſurgeon: and I believe it will alſo be allowed, that general reflections of this kind are, and muſt be, the conſequences of a petulant attempt to be witty, rather than of conviction; and therefore, at beſt, are frivolous and idle. But, on the other hand, I am very willing to allow (what indeed I have already allowed) that many parts of ſurgery are ſtill capable of conſiderable improvement; and this part perhaps, as much as, if not more than any; it being one of thoſe in which a general obſervance of, and rigid adherence to old preſcribed rules, have prevented the majority of practitioners from venturing to think for themſelves; and have induced them to go on in a beaten track, from which they might not only ſafely, but advantageouſly deviate.

The general doctrine, relative to fractures, is contained under the following heads, as parts of the treatment of them.

Extenſion.

Counter-extenſion.

Coaptation or ſetting.

Application of medicaments.
Deligation or bandage.
Poſition.
Prevention or relief of accidents.

This is the general arrangement of the ſubject by moſt of the writers on it, and a very juſt and proper one it is; but notwithſtanding the parade of books under theſe various heads, much leſs alteration will be met with, ſince the times of Hippocrates, Galen and Celſus, than an inquirer might expect, or than the ſubject is capable of.

I muſt deſire that what I have ſaid may not be miſconſtrued. I do not mean that there are not, and have not at all times been, men of particular ingenuity, who have deviated from the common methods, and have greatly improved the art; but ſtill the common methods are the ſame, and the multitude of practitioners religiouſly follow them. Let me not therefore be charged with preſumption or arrogance, if I ſay, that under almoſt every of the foregoing heads the practice is capable of conſiderable improvements; improvements which would ſhow rationality and ſenſe in the ſurgeon, and produce eaſe and convenience to the patient.

I am aware that ſome of my readers may be inclined to charge me with affecting to deviate from the commonly preſcribed rules; and to contradict opinions, which a great length of time, and a long ſucceſſion of writers have given ſanction to.

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"Imberbes didicere, ſenes perdenda fateri,"

is a hard leſſon ſometimes to human vanity, and what requires ſome degree of candor to learn. But, on the other hand, if it was not now and then practiſed, I know not how ſuch an art as ſurgery (whoſe baſis is experience) could ever be improved. Our anceſtors deſerve our beſt thanks for the aſſiſtance which they have given us; where

where we find them to be right, we are obliged to embrace their opinions as truths; but implicit faith is not required from man to man; and our reverence for our predeceſſors muſt not prevent us from uſing our own judgments. Antient and modern are mere ſounds, and can ſignify nothing in this caſe, unleſs with the former we can connect an idea of truth eſtabliſhed and confirmed by time and experience, and with the latter, that of demonſtrable improvement upon what has gone before.

If what I have to urge is not capable of being verified, and confirmed by experience, it muſt ſink into nothing; but if, upon trial, it ſhall be found by the majority, (as it has been by me and ſome others) to be not only true and practicable, but highly conducive to the eaſe and benefit of the afflicted, it ought to have as much weight, though delivered by a living writer, as if it had proceeded from the remoteſt antiquity: its uſe, not its date, ſhould give it value. If practitioners, ſince the time of Albucaſis, had been contented with his doctrine, and never had ventured to think for themſelves, ſurgery had not been what it now is; and its great merit would ſtill have conſiſted in the multiplicity of its hot irons. In ſhort, to ſuch as think that we are ſeldom or never to deviate from the opinions and practice of thoſe who have gone before us, I ſhall take the liberty of anſwering in the words of the great Mr. Locke, who ſays, "the floating of other "mens' opinions in our brains, makes us not one jot the more know-"ing, though they happen to be true. And beaten tracks lead thoſe "whoſe thoughts reach only to imitation," 'non quo eundem eſt, 'ſed quo itur.'

Before I enter on the ſubject, the reader will give me leave to acquaint him, that it is by no means my intention to write a regular treatiſe on fractures, although I think the ſubject well deſerving of,

and even requiring one. I only mean to throw out a few hints, which I hope may prove intelligible and useful.

The first article, in the general arrangement, is extension; under which may also be comprehended the second, or counter-extension.

In order to accomplish this, we are directed, if the fracture be of the thigh or leg, to place the patient in a supine posture, and the broken limb in a straight one; then having the upper part of it held firm and steady, by proper assistants, we are ordered, by means of hands, ligatures, laces, or even in some cases by pieces of machinery, to make such an extension or stretching of the limb lengthways, as shall enable the surgeon to place the ends of the broken bone in as apt, that is, in as even a position, with regard to each other, as the nature of the fracture will admit.----This is a short description of what, in the vulgar phrase, is called setting a broken bone; and is most commonly a painful operation to the patient, a fatiguing one to the operator and his assistants; and what is worse, is in many instances found to be inefficacious; at least, not fully to answer the intention of the one, or the expectation of the other.* Writers,

* "Instruments for extension are threefold; first, the surgeons hands, &c. secondly, "funes & habenæ, a sort of bandage fit to pluck at, in order for extension; thirdly, "there are organa & machinemata, engines used by us, and invented by the ancients." WISEMAN.

The very mention of funes, habenæ, organa and machinemata, implies a force exceeding that of mere hands. A degree of force, which in a fracture never can be wanted, if the limb be rightly placed; a degree of force which must, in the nature of things, do mischief; and a degree of force, whose whole effect, however great, must cease immediately upon its being removed; unless the fracture be particularly and luckily circumstanced.

There are not wanting instances of the muscles surrounding a bad though simple fracture, having been torn by extension, and spasm and other mischief thereby produced. See cautions on this subject, laid down by many old writers, particularly by Galen and Albucasis.

Writers, in general, are very preciſe and formal in the directions which they have given, for the due and proper accompliſhment of this purpoſe. They have told us, that the extenſion ſhould be made ſlowly and gradually; and ſhould be continued till the ends of the bone are ſeparated from each other ſufficiently to admit of the fracture being ſet without riſque of breaking off any points or inequalities, and to enable us to place them perfectly ſmooth and even. All this, like many other of the preceptive parts of phyſic and ſurgery, is very pretty on paper, but not often found to be practicable in the chamber. The direction to continue the extenſion until the ends of the bones are at a certain diſtance, lengthways from each other, plainly implies a conſiderable degree of violence; the limb muſt, by ſuch force, be not only made longer than its fellow, or than nature ever intended it ſhould be, but this procruſtian method of lengthening it is ordered to be executed while the limb is in ſuch poſition as to put all the muſcles moſt on the ſtretch, and render them leaſt likely to yield to it. Now, not to ſay a word of the great probability of the points and edges of the fracture wounding the ſurrounding muſcles, or of ſuch wounds being more painful, or worſe in their conſequences, when inflicted on parts thus ſtretched, or of the addition that ſuch force muſt make to the laceration already neceſſarily made by the fracture; I ſay, not to mention a word of all this, can the method itſelf (without conſidering any accidental, adjunct circumſtances) be practiſed in every fracture, or even in the majority of fractures? Will it be done properly by the rude, the inattentive, and the ignorant? if attempted by ſuch, will it not be, is it not, frequently productive of pain, tumefaction, inflammation, and extravaſation; which are ſet to the account of the nature of the fracture, and to inevitable neceſſity? and when done ever ſo properly, will it, can it, in an oblique or ſplintered fracture, anſwer the purpoſe it is intended for, or produce a more happy coaptation?

Whence

Whence ariſe theſe evils? from whence proceed the difficulty and the ſo frequent diſappointment?

In order to underſtand this rightly, let us for a moment conſider, what is or ought to be meant by the terms extenſion and counter-extenſion, and why they become neceſſary: for if the greater part of the pain attending ſuch method, and the frequency of diſappointment, both to patient and ſurgeon, ſhould be found to ariſe from this part of the proceſs; and that ſuch part can be either diſuſed without prejudice, or altered with advantage, we ought to think ourſelves happy in having it in our power to correct our error.

Neither extenſion, nor counter-extenſion, can ever be neceſſary, on account of the mere fracture, conſidered abſtractedly. The broken ends of the bone or bones are of themſelves inactive; and if not acted upon by other parts, they would always remain motionleſs. When any attempt is made to put them into motion, they of themſelves can make no poſſible reſiſtance; nor can any be made on their part, ſave an accidental one ariſing from the points of the fracture being entangled with each other; and when they have been once, by the hand of the ſurgeon, placed properly and evenly with regard to each other, they would of themſelves for ever remain ſo. What then is the reaſon why fractured bones always ſuffer a greater or a leſs degree of diſplacement? why is a broken limb almoſt always ſhorter than its fellow? what creates the reſiſtance which we always find in attempting to bring the fractured parts aptly together? whence does it proceed, that when we have done all that is in our power (according to this mode of acting) the ends of the fracture will, in many caſes, become again diſplaced, and lameneſs and deformity frequently enſue? In ſhort, what are the parts or powers which act on the bones, and which, by ſo acting on them, produce all theſe conſequences?

Theſe parts are the muſcles, the only moving powers in an animal body. By the action of theſe on the bones, all locomotion is performed, and cannot be performed without them: and although all bones, when broken, are in ſome degree diſplaced and ſhortened, yet it will always be found, that in proportion as the muſcles ſurrounding, or in connection with a bone, are ſtrong or numerous, or put into action by inadvertence or ſpaſm, ſo will the diſplacement of the ends of ſuch bone, when fractured, be. The even and ſmooth poſition of the fractured ends of a tibia, when the fibula of the ſame leg is intire and unhurt; that is, when the muſcles therefore cannot act upon the former; the viſible and immediate deformity, when both the before-mentioned bones are broken nearly in the ſame place; that is, when the muſcles can act upon, and diſplace ſuch fracture; the great difficulty frequently met with, in endeavouring to get a broken os femoris to lie even tolerably ſmooth, and to prevent ſuch broken limb from being much ſhorter than the other, are, among others which might be produced, ſuch ſtrong, and irrefragable proofs as need no comment.

From the muſcles then, and from them only, proceeds all the difficulty which we meet with in making our extenſion; and by the reſiſtance of theſe, and of theſe only, are we prevented from being always able to put the ends of a fractured bone immediately into the moſt apt contact.

Let us in the next place conſider, what it is which gives to a muſcle, or to the principal muſcles of a limb, the greateſt power of reſiſting any force applied to them ab externo, in order to draw them out into greater length; for whatever that is, the ſame thing will be found to be the cauſe of the different degrees of reſiſtance in ſetting a fracture.

Does not the putting the muſcles in a ſtate of tenſion, or into a ſtate approaching nearly to that of tenſion, almoſt neceſſarily produce this effect? or, in other words, does not that poſition of a limb, which

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puts its muſcles into, or nearly into ſuch a ſtate, give ſuch muſcles an opportunity of exerting their greateſt power either of action or of reſiſtance? This I believe cannot be denied. On the other hand, what is the ſtate or poſition of a muſcle which is moſt likely to prevent it from acting, and to deprive it moſt of its power of reſiſtance? or what is that poſition of a limb which, in the caſe of a broken bone, will moſt incapacitate the muſcles from acting on, and diſplacing it; and in the greateſt degree remove that reſiſtance which they have it in their power to make to the attempts for the reduction of ſuch fracture? Is it not obvious, that putting a limb into ſuch poſition as ſhall relax the whole ſet of muſcles belonging to or in connection with the broken bone, muſt beſt anſwer ſuch purpoſe? Nothing ſurely can be more evident: if this be granted, will it not, muſt it not follow, that ſuch poſture of a broken limb muſt be the beſt for making the reduction; that is, it muſt be that in which the muſcles will reſiſt the leaſt, and be leaſt likely to be injured; that in which the broken bone will be moſt eaſily ſet, the patient ſuffer leaſt pain in preſent, and that from which future lameneſs and deformity will be leaſt likely to happen. A little att ntion to what frequently occurs, may perhaps ſerve to illuſtrate and confirm this doctrine better than mere aſſertion.

What is the reaſon why no man, however ſuperficially acquainted with his art, ever finds much trouble in ſetting a fractured os humeri, and that with very little pain, and a very ſmall degree of extenſion? Is it not becauſe both patient and ſurgeon concur in putting the arm into a ſtate of flexion; that is, into ſuch a ſtate as relaxes all the muſcles ſurrounding the broken bone? and is it not for the ſame reaſon that we ſo very ſeldom ſee (comparatively ſpeaking of this bone with others) a deformity in conſequence of a fracture of it? Let the reduction be attempted with the arm extended from the body, and the difficulty of ſetting will be much increaſed: let the arm be depoſited in

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an extended ſtraight poſition, and the fracture will be diſplaced and lie uneven.

Apply the ſame kind of reaſoning to the os femoris; that bone whoſe fracture ſo often lames the patient, and diſgraces the ſurgeon.

Will it not be more cogent, and more concluſive, in proportion as the muſcles in connexion with this bone are more numerous and ſtronger? I would aſk any man, who has been much converſant with accidents of this kind, what is the poſture which almoſt every perſon whoſe os femoris has been newly broken, puts himſelf into in order to obtain eaſe, until he gets proper aſſiſtance? Do ſuch people ſtretch out their limb, and place their leg and thigh ſtraight, and reſting on the calf and heel? I believe ſeldom or never. On the contrary, do not ſuch people almoſt always bend their knee, and lay the broken thigh on its outſide? and is not the reaſon, why this muſt be the moſt eaſy poſture, obvious?

From want of attention to, or from not underſtanding theſe few ſelf-evident principles, many people permit their patients to ſuffer conſiderable inconvenience, both preſent and future.

It is a maxim univerſally taught and received, that a fractured limb may be in ſuch ſtate, as not to admit of the extenſion neceſſary for its being ſet; that is, if aſſiſtance be not at hand when the accident happens, if they who bring the patient home, do it ſo aukwardly or rudely as to bruiſe and hurt the part; if from drunkenneſs, folly, or obſtinacy in the patient, it happens that the limb is ſo diſordered that it is found to be much ſwollen, inflamed, and painful, it is allowed not to be in a ſtate to admit extenſion.

This, I ſay, is a general maxim, and founded upon very juſt principles; but what is the general practice in conſequence of it? It is, to place the limb in an extended, ſtraight poſition, to ſecure it in that, and then by proper means, ſuch as fomentation, pultice, &c. to endeavour

deavour to remove the tenſion and tumor. Now if it be conſidered, that the ſwollen, indurated, and inflamed, ſtate of the muſcles is the circumſtance which renders extenſion improper, ſurely it muſt be obvious, that ſuch poſition of the limb as neceſſarily puts theſe very muſcles in ſome degree on the ſtretch, muſt be a very improper one for the accompliſhment of what ought to be aimed at. Under this method of treatment, the ſpace of time which paſſes in the removal of the tenſion, is ſometimes conſiderable; ſo conſiderable, that a happy and even coaptation becomes afterwards impracticable; and then this accident, which nine times in ten is capable of immediate relief, is urged as an excuſe for unneceſſary lameneſs and deformity.

How then are we to conduct ourſelves in ſuch circumſtances? The nature of the complaint points out the relief. Extenſion is wrong; a ſtraight poſition of the thigh or leg is a degree of extenſion, and a ſtill greater degree of it in proportion as the muſcles are in ſuch circumſtances as to be leſs capable of bearing it. Change of poſture then muſt be the remedy, or rather the placing the limb in ſuch manner as to relax all its muſcles, muſt be the moſt obvious and certain method of relieving all the ills ariſing from a tenſe ſtate of them: which change of poſture will be attended with another circumſtance of very great conſequence; which is, that the bones may, in ſuch poſture, be immediately ſet, and not one moment's time be thereby loſt; a circumſtance of great advantage indeed! for, whatever may be the popular or prevailing opinion, it is demonſtrably true, that a broken bone cannot be too ſoon put to rights; as muſt appear to every one who will for a moment conſider the neceſſary ſtate of the muſcles, tendons, and membranes ſurrounding, and the medullary organs contained within a large bone broken and unſet; that is, lying in an uneven, irregular manner. Can any truth be more clear, than that if the fracture, tenſion, and tumefaction be ſuch that the muſcles cannot

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bear to be ſtretched out in the manner neceſſary for ſetting the broken bone, without cauſing great pain, and perhaps bringing on ſtill worſe ſymptoms; the more the poſition of that limb makes its muſcles approach toward a ſtate of tenſion, the leſs likely it muſt be that ſuch ſymptoms ſhould remit, and the longer it muſt be before the wiſhed-for alteration can happen; and conſequently, that while the accompliſhment of ſuch purpoſe is by every other means aimed at, the poſition of the limb ought moſt certainly to contribute to, and not to counteract it? In ſhort, if the experiment of change of poſture be fairly and properly made, the objections to immediate reduction, from tenſion, tumor, &c. will moſt frequently be found to be groundleſs; and the fracture will be capable of being put to rights, as well at firſt as at any diſtance of time afterward.

Extenſion having been made, and the broken ends of the bone having been placed as ſmooth and as even as the nature of the caſe will admit, the next circumſtance to be attended to is the application of ſome medicament to the limb; particularly to the fractured part of it. In this, different people act differently. Some make uſe of an adheſive, or what they chuſe to call a roborant plaſter; ſome, of what is commonly called a cere-cloth; others apply ſpirit. vini with oil, vinegar, and white of egg; and others the ſpirit. mindereri, the ſolution of crude ſal ammoniac in vinegar and water, or ſome ſuch kind of medicine.

To the cere-cloth, provided it neither ſticks to the ſkin, nor is capable of irritating it, there can be no objection; neither can there be any to all the others, except the adheſive plaſter; that muſt for ever be wrong upon every rational principle. The intention in applying any kind of external medicine to a broken limb is, or ought to be, to repreſs inflammation to diſperſe extravaſated blood, to keep the ſkin lax, moiſt, and perſpirable, and at the ſame time to afford ſome,

though very ſmall degree of reſtraint or confinement to the fracture, but not to bind or preſs; and it ſhould alſo be calculated as much as poſſible to prevent itching, an herpetic eruption, or an eryſipelatous efflorescence. Adheſive plaſters of all kinds, let the compoſition of them be what it may, are from this one quality the leaſt likely to contribute to any of the good ends propoſed, and the moſt likely to be the cauſe of the contrary inconveniences, which ought moſt carefully to be avoided. They obſtruct perſpiration, they heat the ſkin, they produce itching, eruption and inflammation; and if the fracture be quite ſurrounded by them, and the limb be from any cauſe ever ſo little inclined to ſwell, they make a tight, painful, and pernicious ſtricture, much greater even than a roller, and leſs likely to relax. At St. Bartholomew's hoſpital, we uſe a cerate made by a ſolution of lytharge in vinegar, which with ſoap, oil, and wax, is afterward formed into ſuch conſiſtence as juſt to admit being ſpread without warming.

This lies very eaſy, repels inflammation, is not adherent, comes off clean, and very ſeldom if ever irritates, or cauſes either herpes or eryſipelas. But let the form and compoſition of the application made to the limb be what it may, one thing is clear, viz. that it ſhould be put on in ſuch manner, as that it may be renewed and ſhifted as often as may be neceſſary, without moving the limb in any manner; it being certain, that when once a broken thigh or leg has been properly put to rights, and has been depoſited properly on the pillow, it ought not ever to be lifted up or moved from it again without neceſſity, until the fracture is perfectly united; and it is as true, that ſuch neceſſity will not very often occur. This may perhaps ſeem ſtrange to thoſe who are accuſtomed to roll ſimple fractures, and conſequently to lift them up every three or four days, in order to renew ſuch kind of bandage: but the neceſſity of this motion ariſes merely from the kind of bandage made uſe of, and not from any circumſtance of the fracture itſelf. That the frequent motion of a fractured limb cannot poſſibly

contribute

contribute to the eaſe of the patient, will, I ſuppoſe, be readily admitted; as I ſuppoſe alſo it will, that when a broken limb has been once depoſited in the beſt poſition poſſible, it is impoſſible to mend that poſition merely by taking ſuch limb up and laying it down again; from whence it muſt follow, that ſuch kind of apparatus as neceſſitates the ſurgeon frequently to diſturb the limb, cannot be ſo good as one that does not; provided the latter will accompliſh the ſame kind of cure as the former: the truth of which poſition will appear in the moſt ſatisfactory manner to any who will take a view of the method in which ſimple fractures are treated at the before-mentioned hoſpital. Such application having been made as the ſurgeon thinks right, the next thing to be done is to put on a proper bandage.---That uſed by the ancients, and by the majority of the preſent practitioners, is what is commonly called a roller. This is of different length, according to the ſurgeon's choice, or as it may be uſed in the form of one, two, or more pieces. Hippocrates uſed three *; Celſus ſix; but the preſent people ſeldom uſe more than one. By ſuch kind of bandage three intentions are aimed at, and ſaid to be accompliſhed, viz. to confine the fracture, to repreſs or prevent a flux of humours, and to regulate the callus †: but whoever will reflect ſeriouſly on this matter will ſoon be convinced, that although ſome ſort of bandage is neceſſary in every ſimple fracture, as well for preſerving ſome degree of ſteadineſs to the limb, as for the retention of the applications, yet none, nor neither of theſe three ends can be anſwered merely, or even principally, by bandage

* See on this ſubject Fab. ab Aquapendente, Wiſeman, Scultetus, Hildanus, Petit, Du Verney.

† "On applique la premiere ſur l'endroit meme de la fracture. Son milieu doit repondre au centre. On fait trois tours circulaires: ce qui ſert a affermir cet endroit, qui eſt le ſeul, qui ait beſoin d'etre aſſujetti, comme etant le ſeul qui peut ſe deranger, *& a contenir le ſuc nouricier & empecher, qu'il ne s'echappe trop abondamment & trop irregulierement a l'entour de la fracture; ce qui feroit un cal tres difforme.*" DU VERNEY.

dage of any kind whatever: and therefore if this ſhould be found to be true, that is, if it ſhould appear that whatever kind of deligation be made uſe of, it cannot be a principal, but only an acceſſorial kind of aſſiſtance, and that in a ſmall degree and very little to be depended upon, it will follow, that ſuch kind of bandage as is moſt difficult to be applied with juſtneſs and exactitude, ſuch as is ſooneſt relaxed and out of order, ſuch as ſtands moſt frequently in need of renewal, and in ſuch renewal is moſt likely to give pain and trouble, muſt be more improper and leſs eligible than one which is more eaſily applied, leſs liable to be out of order, and which can be adjuſted without moving the limb.

The ancient method of applying the roller in caſe of ſimple fracture of the leg or thigh, was to make * four or five turns round the fracture firſt, and then to continue the bandage upward and downward, until the whole limb was enveloped properly. This was done in this manner with a double view; to keep the broken ends of the bone in their place, and to prevent the influx of humour. Modern practitioners, although they have the ſame ends in view, generally begin their bandage from the inferior extremity of the limb, and continue it up to the top. Whether the old or the later method be followed, whether one or more rollers be made uſe of, the whole is executed while the limb is kept by means of the aſſiſtants in the ſame extended poſture in which the coaptation was made, ſo that the whole bandage is finiſhed before the leg is depoſited on the pillow; in the doing all which, if from the tired ſtate of the ſurgeon †, or either of his

* See a particular account of this in Fab. ab Aquapendente, and in Serjeant Wiſeman.

† The extraordinary length of time uſed by ſome in putting a fracture to rights, renders what I have called the *tired ſtate of the aſſiſtants* an object of importance. The good

his aſſiſtants, or if from the aukwardneſs or unhandineſs of any of the parties concerned, the true and exact poſition of the limb be at all deviated from, the ends of the bone will again be in ſome degree diſplaced, and the bandage inſtead of being of uſe will become prejudicial, by preſſing hard on the inequalities of the fracture: to which let me add, that the roller, eſpecially when applied to a leg, if it be not put on with due dexterity, that is, if it does not ſit perfectly ſmooth and even, is the moſt unequal and worſt kind of bandage in uſe.

Theſe objections, however juſt, are not the leaſt to which the roller in the caſe of ſimple fracture of the leg or thigh are liable; for, as I have already hinted, it muſt in a very ſhort ſpace of time, even while the parts ſurrounding the fracture are in the moſt tender and moſt painful ſtate, be renewed, and that more than once; which renewal cannot be executed without again taking the limb off from the pillow, again committing it to the hands of aſſiſtants, and again running a riſque of diſplacing the fracture: all which, not to mention the repetition of pain to the patient every time ſuch operation is performed, and which muſt be at leaſt every four or five days, are (as I have already ſaid) very material objections to the roller, even in the moſt judicious and dexterous hands, and ſtill more ſo in thoſe of the rude and ignorant.

The prevention of a flux of humors to a broken limb, by bandage, is a common phraſe; but they who uſe it have either no idea at all annexed to it, or a very erroneous one.

If by the points and edges of the broken bone, the muſcles and membranes be unavoidably wounded and torn, or if the ſame kind of miſchief

good poſition of the fracture depends as much or more on them than on the ſurgeon. If the aſſiſtant who holds the foot varies from the proper manner, I defy the ſurgeon to redreſs the fracture without the concurrence of ſuch aſſiſtant.

miſchief be incurred by the inadvertence or indiſcretion of the patient, or of thoſe who aſſiſted in getting him home, or from the violence uſed in extending the limb and ſetting the fracture, inflammation muſt be excited, and pain and tumefaction will be the conſequence; and theſe will continue for ſome time in every fracture; but that ſpace will be longer or ſhorter in different caſes, and under different circumſtances: evacuation, reſt, and a favorable poſition of the limb, will, and do in general, remove all theſe complaints; but bandage can contribute nothing more than by keeping the applications in their proper place; ſo far from it, that if the bandage be a roller, it muſt, by the frequent neceſſity of its being adjuſted, and the frequent motion of the limb, in ſome degree counteract the proper intention of cure.

The old writers are in general very preciſe as to the number of days during which the roller ſhould be ſuffered to remain without being ſhifted; and the number of times which ſuch ſhifting ſhould be repeated within the firſt fortnight.* This exactitude is by no means neceſſary; but if the bandage be ſuppoſed to be of any uſe at all, it is obvious, that it ought to be renewed or adjuſted as often as it may ceaſe to perform the office for which it is deſigned, or whenever it ſhall be found to counteract ſuch office; that is, as often as it ſhall become ſo ſlack as not to contain the fracture at all; or whenever the limb ſhall be ſo ſwollen, that the roller makes an improper degree of ſtricture; the former generally occurs every four or five days; the latter is moſt frequent within the firſt week.

In

* "Tertio die a deligatione facta, Hippocrates faſcias reſolvit, &c. Facta bona deli-
" gature & pruritu non infectante, a tertio uſque ad ſeptimum oportet ægrum deligatum
" detinere.
" Septimo membrum rurſus ſolvendum perfundendum aqua tepida & ligandum."

FAB. AB AQUAPENDENTE.

In moſt of the writers on the ſubject of fractures, we alſo find marks or ſigns laid down for our information concerning the due or undue effect of the bandage on the limb. They tell us, that when that part of it which is below the termination of the roller does not ſwell at all, that the bandage is not ſufficiently ſtrict, and will not retain the fracture; that when the ſame part is conſiderably ſwollen, or tenſe, or inflamed, it implies, that the binding is too ſtrait; and that a moderate degree of tumefaction is a ſign that the deligation is properly executed.*

In conſequence of theſe precepts, many practitioners look more anxiouſly after this degree of tumefaction, than after the true and exact poſition of the limb; and cannot be induced to believe, that any thing can be wrong under this appearance; although, if they would for once aſſume the liberty of thinking for themſelves, they might be convinced, that even this degree of ſwelling is wrong; that it implies ſome kind of obſtruction to the circulation, and cannot ſerve any good purpoſe; and conſequently that as far as it may be ſuppoſed to be the effect of bandage, ſo far that bandage muſt be faulty.

The third purpoſe for which the roller is ſaid to be uſed, is the regulation and reſtraint of the callus.

If we were to form our notion of callus by what the generality of writers have ſaid on this ſubject, we ſhould ſuppoſe, that it was not

* See on this Fab. ab Aquapendente, who ſpeaks or rather copies the ſentiments of Hippocrates and Celſus. " Terminus in ſtringendo debet eſſe bona laborantis tolerantia: " ut deligatum leviter premat, & ſic tum contineat & ſtabiliat fracturam, tum humores " exprimat. Sunt etiam alia hujus ſigna, quæ altero die apparent; ſi enim æger eo die " quo deligatus ſentiat ſe valentius ſtringi, poſtero vero die tumor laxus, mollis & par- " vus appareat, bona eſt deligatio, quia jam humores a parte fracta ſunt expreſſi. Si " vero aut nullus tumor aut magnus & durus poſtridie in manu vel pede appareat, prava " eſt deligatura; quia illa non continet hæc vero nimis arcta eſt & inflammationem mo- " vet. Id notandum faſcias magis ſtringi debere in parte fracta, quam alibi, ut pars " fracta magis illæſa ſervetur, ab humorum defluxu."

only a particular juice always ready for the purpoſe, but that, if not reſtrained and regulated by art, it would always flow in ſuch quantity, as to create trouble and deformity; that there were ſpecific remedies for increaſing or decreaſing it; and that it always required the hand and act of ſurgery to manage it. That the callus is ſo far a particular juice, as that it conſiſts of whatever is deſtined to circulate through the bones for their particular nouriſhment, is beyond all doubt; and that this gelatinous kind of fluid is the medium by which fractures are united is as true; but that it requires art to manage it, or that art is in general capable of managing and directing it, is by no means true. That this callus or uniting medium does oftentimes create tumefaction and deformity, or even lameneſs, is true alſo; but the fault in theſe caſes does not lie in the mere redundance of ſuch juice; it is derived from the nature of the fracture, from the inequality of it when ſet, and from the unapt poſition of the broken ends with regard to each other; nor is ſurgery or the ſurgeon any otherwiſe blameable in this caſe, than as it was or was not originally in their power to have placed them better. It is the inequality of the faacture which makes both the real and apparent redundance of callus, and the tumefaction in the place of union. When a bone has been broken tranſverſely, or nearly ſo, and its inequalities are therefore neither many nor great, when ſuch broken parts have been happily and properly coaptated, and proper methods have been uſed to keep them conſtantly and ſteadily in ſuch ſtate of coaptation, the divided parts unite by the intervention of the circulating juice, juſt as the ſofter parts do, allowing a different ſpace of time for different texture and conſiſtence. When the union of a broken bone under ſuch circumſtances has been procured, the place where ſuch union has been made, will be very little perceptible, it will be no deformity, nor will it occaſion any inconvenience. It will indeed be diſcoverable, like a cicatrix of a wound in a ſofter part,

but

but there will be no redundance of callus, becauſe none will be wanted; neither will there be any neceſſity for any particular management on the part of the ſurgeon, to repreſs or keep it in order: But when a bone has been broken very obliquely or very unequally, when the parts of a fracture are ſo circumſtanced as not to admit of exact coaptation, when ſuch exact coaptation as the fracture perhaps would have admitted has not been judiciouſly made, when from unmanageableneſs, inadvertence or ſpaſm, the proper poſition of the limb has not been attended to or preſerved, in all ſuch caſes there muſt be conſiderable inequality of ſurface; there muſt be riſings on one ſide, and depreſſions on another; and in ſuch caſes the juices circulating through the bone, cannot accompliſh the union in the ſame quantity, the ſame time, or in the ſame manner. The broken parts not being applied exactly to each other, there cannot be the ſame aptitude to unite; and according to the greater or leſſer degree of exactitude in the coaptation, that is, according as the ends of the bones are, or have been placed more or leſs even with regard to each other, will the inconvenience and the deformity be; and ſtill moſt where the fracture is not ſet at all; but the broken ends of the bone unite laterally, or by touching each other's ſides. The reaſon of all this is ſo obvious, without having recourſe to a particular ſpecific juice under the name of callus, that it would be an inſult upon the reader's underſtanding to explain it farther.* The perioſteum covering every fracture will remain thickened for ſome time, and a degree of fulneſs or riſing will be thereby cauſed about the place where ſuch fracture has been united; but time, and the uſe of the muſcles, ſoon in general remove this.

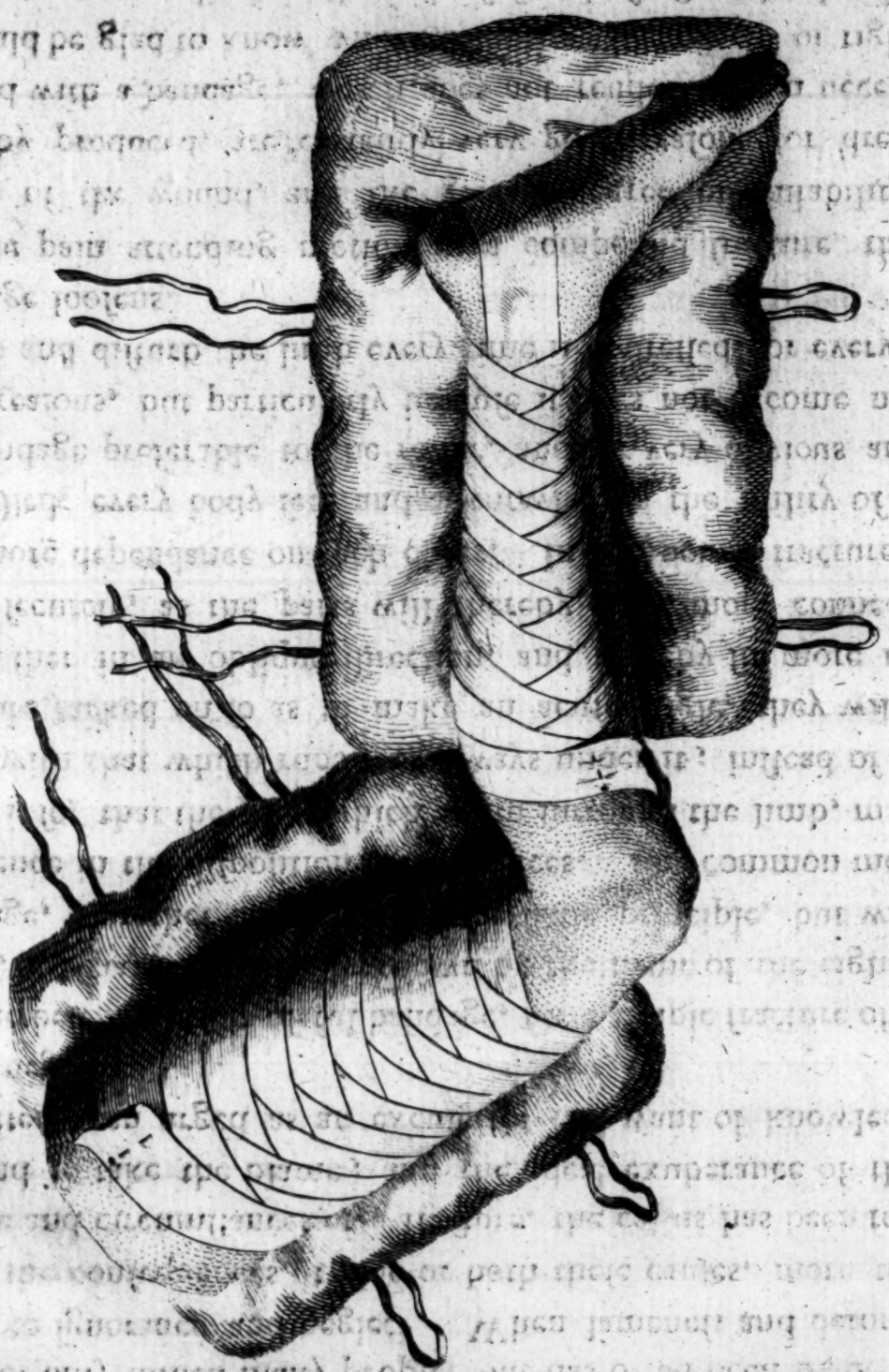
* On the ſubject of callus, the editor of Du Verney tells a ſtory from Galen, and which himſelf ſeems not to diſbelieve, viz. that a callus in a particular caſe, was ſo redundant as to tranſude through the ſkin, and to keep the compreſſes conſtantly wet.

In ſhort, this doctrine of callus, conſidered as a particular kind of juice, and as being liable to great redundance if not prevented by art, has not only miſled many people, but has often been made uſe of as a cover to ignorance and neglect. When lameneſs and deformity have been the conſequences of one or both theſe cauſes, more than of the nature and circumſtances of a fracture, the callus has been found ready at hand to take the blame; and the ideal exuberance of this cement has often been urged as an excuſe for real want of knowledge, or for groſs neglect.

The beſt and moſt uſeful bandage, for a ſimple fracture of the leg or thigh, is what is commonly known by the name of the eighteen-tailed bandage, or rather one made on the ſame principle, but with a little difference in the diſpoſition of the pieces. The common method is to make it ſo, that the parts which are to ſurround the limb, make a right angle with that which runs lengthways under it; inſtead of which, if they are tacked on ſo as to make an acute angle, they will fold over each other in an oblique direction, and thereby ſit more neatly and more ſecurely, as the parts will thereby have more connection with and more dependance on each other. In compound fractures, as they are called, every body ſees and acknowledges the utility of this kind of bandage preferable to the roller, and for very obvious and convincing reaſons, but particularly becauſe it does not become neceſſary to lift up and diſturb the limb every time it is dreſſed, or every time the bandage looſens.

The pain attending motion in a compound fracture, the circumſtance of the wound, and the greater degree of inſtability of parts thereby produced, are certainly very good reaſons for dreſſing ſuch wound with a bandage, which does not render motion neceſſary; but I ſhould be glad to know what can make it neceſſary, or right, or eligible, to move a limb in the caſe of ſimple fracture? what benefit can

be



be propoſed by it? what utility can be drawn from it? When a broken bone has been well ſet, and the limb well placed, what poſſible advantage can ariſe from moving it? ſurely none; but, on the contrary, pain and probable miſchief. Is it not the one great intention, to procure unition? Can moving the limb every two or three days contribute to ſuch intention? muſt it not on the contrary obſtruct and retard it? Is not perfect quietude as neceſſary toward the union of the bone, in a ſimple as in a compound fracture? It is true, that in the one there is a wound which requires to be dreſſed, and the motion of the limb may in general be attended with rather more pain than in the other; but does motion in the ſimple fracture give eaſe, or procure more expeditious union?

Every benefit then which can be ſuppoſed to be obtained from the uſe of the common bandage or roller, is equally attainable from the uſe of that which I have juſt mentioned, with one additional, and to the patient, moſt invaluable advantage, viz. that of never finding it neceſſary to have his leg or thigh once, during the cure, removed from the pillow on which it has been properly depoſited. In ſhort, to quit reaſoning and ſpeak to fact, it is the conſtant practice at St. Bartholomew's, and attended with all poſſible ſucceſs. We always uſe the eighteen-tailed bandage; and never move the limb to renew or adjuſt it.*

The parts of the general apparatus for a ſimple fracture, which come next in order, are the ſplints.

Theſe are generally made of paſte-board, wood, or ſome reſiſting kind of ſtuff, and are ordered to be applied lengthways on the broken limb; in ſome caſes three, in others four; for the more ſteady and quiet detention of the fracture.

That

* See the different opinions of different French practitioners, with their reaſons on this ſubject, in Du Verney, Traitè des Maladies des Os.

That ſplints properly made and judiciouſly applied are very ſerviceable, is beyond all doubt, but their utility depends much on their ſize and the manner in which they are applied.

In general practice, they are made of ſuch length, as not to reach either upward or downward, ſo far as the roller extends; not to comprehend either the upper or the lower joint of the broken bone, and to exceed the fracture either way not many inches: they do not, for example, in the broken leg, comprehend either the joint of the knee, or the joint of the ancle, and act only on the fracture.*

In this manner of application, and of this ſize, they are in fact neither more nor leſs than compreſſes, and compreſſes made of very bad materials. All the good that ever is, or that can be done by them, when of ſuch length and ſo applied, might certainly be done in a better

* This is the old doctrine, and has been almoſt univerſally and conſtantly adhered to and followed. Our foreſathers, finding that ſuch ſplints as they uſed and applied in their manner excited pain and inflammation, did not uſe, but forbad them until after ſeven days were paſt, and the firſt inflammation, as they thought, was over.

After this, they put them on to ſtrengthen the fracture, as they ſaid, and therefore made them ſhort for that purpoſe only, expreſsly cautioning us againſt the only method of applying them (in the caſe of a broken leg) in which they can be really uſeful, viz. that in which they comprehend both the knee and ancle.

" Ferularum uſus idem eſt ac pannorum ad fractum os continendum, ut maneat immotum, etiamſi membrum univerſum moveatur.

" Jubet Hippocrates leves eſſe ferulas & æquales & ad extrema renimas, &c.

" Sed & *breviores ferulas* eſſe *præcipit ipſa* vinctura, ne quando cutem proximam tentare " valeant eminentem plerumque ob humores receptos, quos faſciæ exturbant. Id quoque " cavere oportet, ne ad oſſium eminentias, quales in ima tibia & ſura ſunt, ferulæ pertin- " gant, &c. &c. &c." ORIBASIUS DE FRACTURIS.

" Sed hoc tempore (poſt ſeptimum diem) vice plagularum oportet ferulas apponere.

" His utebatur Hippocrates demum poſt ſeptimum diem; quia ante ſeptimum magis " urgebat intentio arcendæ inflammationis, quam intentio ſtabiliendi fracturam; poſt " ſeptimum autem contra accidit."

FAB. AB AQUAPENDENTE.

ter manner by a more proper kind of compreſs, and every diſadvantage, which a hard reſiſting compreſs, injudiciouſly applied, is capable of producing, is probable to reſult from them thus uſed.

The true and proper uſe of ſplints is, to preſerve ſteadineſs in the whole limb, without compreſſing the fracture at all. By the former they become very aſſiſtant to the curative intention; by the latter they are very capable of cauſing pain and other inconveniences; at the ſame time that they cannot, in the nature of things, contribute to the ſteadineſs of the limb.

In order to be of any real uſe at all, ſplints ſhould, in the caſe of a broken leg, reach above the knee and below the ancle; ſhould be only two in number, and ſhould be ſo guarded with tow, rag, or cotton, that they ſhould preſs only on the joints, and not at all on the fracture.

By this they become really ſerviceable; but a ſhort ſplint, which extends only a little above and a little below the fracture; and does not take in the two joints, is an abſurdity; and, what is worſe, it is a miſchievous abſurdity.

By preſſing on both joints, they keep not only them, but the foot ſteady; by preſſing on the fracture only, they cannot retain it in its place, if the foot be in the ſmalleſt degree diſplaced, but they may, and frequently do occaſion miſchief, by rudely preſſing the parts covering the fracture againſt the edges and inequalities of it.

I ſuppoſe it will be ſaid, that although ſhort ſplints do not of themſelves ſuſtain and keep ſteady the two joints, and conſequently the limb, yet that purpoſe in the broken leg may be and is fulfilled by junks, fanons, and other contrivances: To which I anſwer, that then the ſhort ſplints are in that caſe of no uſe at all, and had better be laid aſide; they ſhould be uſed for no other purpoſe, but that of keeping the limb ſteady; and if they do not anſwer that end, they are an incumbrance,

cumbrance, and multiply the articles in the apparatus for a fractured leg, very unneceſſarily.

In the caſe of a fractured os femoris, if the limb be laid in an extended poſture, one ſplint ſhould certainly reach from the hip to the outer ancle, and another (ſomewhat ſhorter) ſhould extend from the groin to the inner ancle. In the caſe of a broken tibia and fibula, there never can be occaſion for more than two ſplints, one of which ſhould extend from above the knee to below the ancle on one ſide, and the other ſplint ſhould do the ſame on the other ſide. The manner of applying them, if the limb be depoſited in a ſtate of flexion, will come under the next article.

This, and indeed the moſt eſſential article in the treatment of a fracture is, the poſition of the limb. Upon the judicious or injudicious, the proper or improper execution of this, depends the eaſe of the patient during his confinement, and the free uſe and natural appearance of his limb afterward.

If I meant to deſcribe, or if I approved (pardon the phraſe) the common method of placing the broken leg and thigh in a ſtraight manner, this would be the place to mention the many very ingenious contrivances and pieces of machinery, which practitioners, both ancient and modern, have invented for the purpoſe of keeping the whole limb ſtraight and ſteady, that is, of keeping all the muſcles ſurrounding the fractured bone conſtantly upon the ſtretch, and at the ſame time of preventing any inequality in the union of it, and any ſhortening of the limb, in conſequence of ſuch inequality.

But as it is my intention by theſe ſheets, to inculcate another, and as it appears to me a better diſpoſition of the limb, in which ſuch boxes, cradles, and pieces of machinery are not wanted, nor can be uſed, it is needleſs for me to ſay any thing about them.

According

According to this plan, the fractured leg and thigh ſhould be depoſited on the pillow, in the very poſture in which the extenſion was made, and the fracture ſet, that is with the knee bent.

I have already been ſo explicit, or perhaps prolix, on the tenſe and lax ſtate of the muſcles, as depending on poſture, under the head of extenſion, that I ſhall ſpare the reader, as well as myſelf, a good deal of trouble by referring back to that article. All that is there urged, or that can be urged for making the extenſion, that is, for ſetting a fracture in ſuch diſpoſition of a limb or its muſcles, is equally powerful and concluſive with regard to the manner of depoſiting and leaving it after it ha[illegible]en ſet. Whatever render reduction and coaptation eaſy, muſt as neceſſarily maintain eaſe during the confinement, preſerve rectitude of figure, and prevent diſplacement. The ſame principle muſt act on both occaſions, and whether the doctrine be right or wrong, conſidered by itſelf, it muſt be equally ſo in both circumſtances, that is, in the manner of ſetting a fracture, and in the manner of depoſiting the limb afterward.* In the caſe of the fractured os humeri, the only poſition in which it can with any tolerable convenience to the patient be placed is, with the elbow bent, that very poſition which neceſſarily relaxes and removes all the reſiſtance of the ſurrounding muſcles. Daily experience evinces the utility of this, by our very ſeldom meeting with lameneſs or deformity after it, notwithſtanding the prevailing apprehenſion of exuberant callus.

The deformity frequently conſequent to the fracture of the bones of the cubit, particularly that of the radius only, will generally, if not

* It has been ſaid, that the ſtraight poſition of a limb, by putting the muſcles on the ſtretch, induces them to contribute to the ſecurity of the fracture againſt diſplacement. If this be the caſe in general, how happens it that thoſe bones are always found moſt liable to be diſplaced when broken, and to be moſt difficult to keep in their proper place, which are ſurrounded by the moſt, and by the ſtrongeſt muſcles?

always, be found to be in proportion as the muſcles concerned in the pronation and ſupination of the hand happen to be put more or leſs into a ſtate of action, or tenſion by the poſition of the limb.

In the thigh, the caſe is ſtill more obvious, as the muſcles are more numerous and ſtronger.

The ſtraight poſture puts the majority of them into action, by which action that part of the broken bone, which is next to the knee, is pulled upward, and by paſſing more or leſs underneath that part which is next to the hip, makes an inequality or riſing in the broken part, and produces a ſhortneſs of the limb.

In the fracture of both bones of the leg, the caſe is ſtill the ſame; a ſtraight poſition puts the muſcles upon endeavouring to act; a moderate flexion of the knee relaxes them, and takes off ſuch propenſity.*

The diſpoſition therefore of the broken cubit ought to be that which, by putting the hand into a middle ſtate between pronation and ſupination, and by bending the fingers moderately, keeps the radius ſuperior to the ulna; or in other words, the palm of the hand ſhould be applied to the breaſt, the thumb ſhould be ſuperior, the little finger inferior; and the hand ſhould be kept in this poſture conſtantly by means of two ſplints, which ſhould reach from the joint of the elbow on each ſide, and ſhould be extended below the fingers; or the ſame purpoſe may be ſtill better anſwered by a ſimple, neat contrivance of the very ingenious Mr. Gooch of Norfolk; of which he has given a draught, and which is preferable to a common ſplint, by its admitting the fingers to be more eaſily bent.

The poſition of the fractured os femoris ſhould be on its outſide, reſting on the great trochanter; the patient's whole body ſhould be inclined

* In proportion as the fracture ſhall happen to be more or leſs oblique, the truth of this doctrine will, upon experiment, be found to be more or leſs apparent, as well as uſeful.

clined to the ſame ſide; the knee ſhould be in a middle ſtate, between perfect flexion and extenſion, or half bent; the leg and foot lying on their outſide alſo, ſhould be well ſupported by ſmooth pillows, and ſhould be rather higher in their level than the thigh; one very broad ſplint of deal, hollowed out and well covered with wool,* rag, or tow, ſhould be placed under the thigh, from above the trochanter quite below the knee; and another, ſomewhat ſhorter, ſhould extend from the groin below the knee on the inſide, or rather in this poſture on the upper ſide; the bandage ſhould be of the eighteen-tail kind, and when the bone has been ſet, and the thigh well-placed on the pillow, it ſhould not, without neceſſity, (which neceſſity in this method will ſeldom occur) be ever moved from it again until the fracture is united; and this union will always be accompliſhed in more or leſs time, in proportion as the limb ſhall have been more or leſs diſturbed.

In the fracture of the fibula only, the poſition is not of much conſequence; becauſe by the tibia remaining intire, the figure of the leg is preſerved, and extenſion quite unneceſſary; but ſtill even here the laying the leg on its ſide, inſtead of on the calf, is attended with one very good conſequence, viz. that the confinement of the knee, in a moderately bent poſition, does not render it ſo incapable of flexion and uſe afterward, as the ſtraight or extended poſition of it does, and conſequently that the patient will be much ſooner able to walk, whoſe leg has been kept in the former poſture; than he whoſe leg has been confined in the latter.

In the fracture of both tibia and fibula, the knee ſhould be moderately bent, the thigh, body and leg in the ſame poſition as in the broken thigh. If common ſplints be uſed, one ſhould be placed under-

* If the pillow on which the broken thigh is placed be not too thick, the ſplint may with equal advantage be placed underneath ſuch pillow, and in many caſes this will be found to be the beſt manner of uſing it.

neath the leg, extending from above the knee to below the ancle, the foot being properly ſupported by pillows, bolſters, &c. and another ſplint of the ſame length ſhould be placed on the upper ſide, comprehending both joints in the ſame manner; which diſpoſition of ſplints ought always to be obſerved, as to their length, if the leg be laid extended in the common way, only changing the nominal poſition of them, as the poſture of the leg is changed, and calling what is inferior in one caſe, exterior in the other; and what is ſuperior in one, in the other inferior.*

If Mr. Sharpe's ſplints be made uſe of, there is in one of them a proviſion for the more eaſy ſupport of the foot and ancle, by an excavation in, and a prolongation of the lower or fibular ſplint, for the purpoſe of keeping the foot ſteady.

I hope that I have expreſſed my meaning clearly; I ſhould be very ſorry to be miſtaken, becauſe it appears to me to be a matter of ſome conſequence; and if what I have ſaid be intelligible, the reader will underſtand from thence, that I mean to ſignify that, (in my opinion) extenſion will in general be made with more facility, and coaptation more happily executed; that a patient will ſuffer a great deal leſs pain during theſe operations, as well as during the neceſſary confinement for a broken leg or thigh; and that both patient and ſurgeon will be leſs likely to be diſappointed in their intention and wiſh, that is, that the former will be leſs liable to lameneſs or deformity, when a fractured

* All writers on this ſubject agree in giving us cautions about defending the heel, and filling up the hollow from it to the calf of the leg; and this they do on account of the pain, excoriation, and even ulceration, which ſometimes attends the ſtraight poſition, with the limb reſting on the heel.

Many of them have alſo taken notice of an accident ſometimes attendant on a broken leg, but which really ought to be ſet to the account of the poſture in which ſuch leg is placed, more than to that of the fracture; I mean the ſhrinking or waſting of the calf.

tured thigh or leg has been treated in the way I have deſcribed, than in the common one.

The reſiſtance neceſſarily made by the muſcles, joined to the great inſtability of parts in every ſpecies of fractured leg or thigh, except in the few where the bones are broken tranſverſely, has conſtantly exerciſed the invention and ingenuity of practitioners, in deviſing means to prevent inequality in the callus as it is called, and ſhortneſs and deformity in the limb. Our books abound with draughts and deſcriptions of machines for this purpoſe; ligatures, pullies, leaden weights and fracture-boxes, ſo conſtructed as to overcome and conſtantly to reſiſt that action of the muſcles ſurrounding the broken bone, that natural tendency in them to contract, which the extended poſition of the limb neceſſarily induces. Every body who has been converſant with matters of this ſort knows, that even the beſt of theſe various contrivances often prove ſucceſsleſs; and every one who will reflect ever ſo little may ſee why they muſt be ſo. That they do prove ineffectual, the number of deformed legs and ſhortened thighs, which are daily met with, evinces; and that they muſt frequently prove ſo will be obvious to every one, who will conſider that the effect can laſt no longer than the cauſe is continued, unleſs there happens to be ſome very favourable circumſtance in the fracture itſelf. What I mean is this, when the reduction of the fracture is ſet about, the limb is put into ſuch poſition, that the ſurrounding muſcles reſiſt the extending force very conſiderably, and this in proportion to their ſtrength and number: that force is continued and increaſed till the muſcles give way, and the reſiſtance being overcome, an opportunity is thereby obtained of placing the ends of the fracture in as apt poſition with regard to each other as the nature of it will admit. If the fracture be of the tranſverſe kind, that is, if the ends of the broken bone be large, and afford a good deal of ſpace for contact with each other, ſuch appoſition will contribute a

good

good deal to the keeping the limb ſteady, and the fracture even; but if the fracture be of the oblique kind, if there be ſeveral looſe pieces, and conſequently neither large contact nor ſtability from the appoſition, or if due extenſion has not been made, or could not, or if the ends of the bones have not been judiciouſly and properly ſet, the muſcles will act as ſoon as the extenſion is relaxed, the fracture will be more or leſs diſplaced, according to the nature of it, the limb will be ſhortened, the time of union will be prolonged, and the place of it (the callus, as it is called) will be in proportion more or leſs unequal.

I take it for granted that it will be aſked, Have not our anceſtors in all times happily redreſſed fractured legs and thighs, by the method which they have delivered down to us, and which in the preceding pages I have taken the liberty to object to? have not ſuch limbs frequently been rendered as ſtraight, as uſeful, and as little deformed as poſſible? I anſwer, moſt certainly, yes; it is an undoubted truth and cannot be denied. But in my turn, let me be permitted to aſk, Whether in the ſame method great and even unſurmountable difficulty is not frequently met with? whether in many caſes the act of ſetting, as it is called, is not exceſſively painful at the time, and productive of inflammation and other diſagreeable ſymptoms afterward? and whether in ſpite of all care, of every contrivance, of every ſpecies of machinery which has yet been uſed, broken thighs and legs are not often, very often left deformed, crooked and ſhortened, and that merely from the action of the muſcles, and the obliquity or ſhattered ſtate of the fracture? The fact is notorious, and the ſole queſtion is, Whether or no a different diſpoſition of the parts, preventing ſuch action and ſuch reſiſtance, will in many inſtances prevent theſe evils? to which, from repeated experience, I anſwer, yes. If this ſhould be found to be the caſe in general, of which I make no doubt, that is, if by this method, many of ſuch unfortunate caſes, as in the common

method

method of treatment diſappoint both patient and ſurgeon, ſhould be found in general to ſucceed ſo well as to ſatisfy both, it will prove all I wiſh it ſhould prove. Superior utility and more frequent ſucceſs are all I contend for.

Many people did very well under amputation before the double inciſion was practiſed; but is the double inciſion therefore no improvement? The operation for the bubonocele may be performed with that clumſy inſtrument the probe ſciſſars, but is the biſtoury therefore not preferable? A ſurgeon may cut off ſome ounces, or even pounds, of fleſh from a patient's backſide, in order to cure a ſinus, but is the cure by the ſimple diviſion of that ſinus therefore not eaſier or more expeditious? Neither of theſe can (I think) be proved, unleſs it can at the ſame time be proved, that pain is no evil, confinement not at all irkſome, and that deformity and elegance of figure are ſynonimous terms.

Let not the reader fancy that I would dare to amuſe him with ſpeculation, or merely ſpecious reaſoning on a ſubject like this. What I have ſaid is from experience, repeated experience both of myſelf and of others, for a conſiderable length of time paſt, and on a great variety of ſubjects; from an experience which has perfectly ſatisfied me, and I think will every man who will make the trial fairly and candidly.---I do not pretend to ſay, that by theſe means every kind of broken bone will infallibly and certainly be brought to lie ſmooth, even, and of proper length; if I did, they who are verſed in theſe things, would know that I ſaid too much; but I will ſay, (what is ſufficient for my purpoſe) that it will not only ſucceed in all thoſe, in which the old method can ever be ſucceſsful; but alſo in the majority of thoſe in which it is not, nor in the nature of things can. In thoſe fortunate caſes, in which either method will do, the old one is fatiguing, inconvenient, and even ſometimes offenſive, from the ſupine

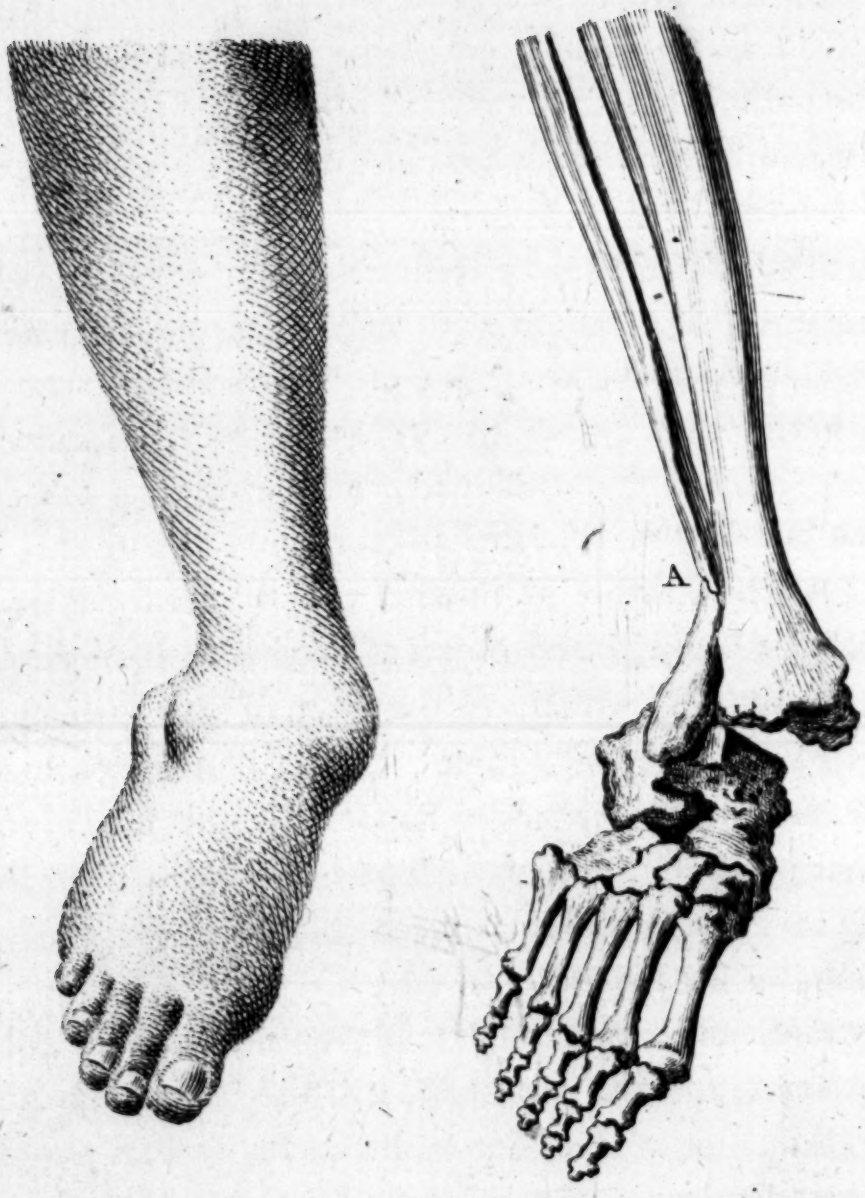
and

and confined poſture of the patient; whereas that which is here propoſed, gives the patient much greater liberty of motion for every purpoſe either of choice or neceſſity, and in many of thoſe caſes, wherein the old method proves moſt frequently ſo far ſucceſsleſs, as to leave the limb ſhort, lame, or deformed; I ſay, in moſt of theſe the propoſed method will not be attended with theſe inconveniences.

I have already ſaid, that in moſt caſes of broken thigh or leg, the method juſt deſcribed will be attended with great ſucceſs: but there is one particular caſe in which its utility is ſtill more conſpicuous; a caſe which, according to the general manner of treating it, gives infinite pain and trouble both to the patient and ſurgeon, and very frequently ends in the lameneſs and diſappointment of the former, and the diſgrace and concern of the latter: I mean the fracture of the fibula attended with a diſlocation of the tibia.

Whoever will take a view of the leg of a ſkeleton, will ſee that although the fibula be a very ſmall and ſlender bone, and very inconſiderable in ſtrength, when compared with the tibia, yet the ſupport of the lower joint of that limb, (the ancle) depends ſo much on this ſlender bone, that without it the body would not be upheld, nor locomotion performed, without hazard of diſlocation every moment. The lower extremity of this bone, which deſcends conſiderably below that end of the tibia, is by ſtrong and inelaſtic ligaments firmly connected with the laſt-named bone, and with the aſtragalus, or that bone of the tarſus which is principally concerned in forming the joint of the ancle. This lower extremity of the fibula has, in its poſterior part, a ſuperficial ſulcus for the lodgment and paſſage of the tendons of the peronei muſcles, which are here tied down by ſtrong ligamentous capſulæ, and have their action ſo determined from this point or angle, that the ſmalleſt degree of variation from it, in conſequence of external force, muſt neceſſarily have conſiderable effect on the motions they

are


A

are deſigned to execute, and conſequently diſtort the foot. Let it alſo be conſidered, that upon the due and natural ſtate of the joint of the ancle, that is, upon the exact and proper diſpoſition of the tibia and fibula, both with regard to each other and to the aſtragalus, depend the juſt diſpoſition and proper action of ſeveral other muſcles of the foot and toes; ſuch as the gaſtrocnemii, the tibialis anticus, and poſticus, the flexor pollicis longus, and the flexor digitorum pedis longus, as muſt appear demonſtrably to any man who will firſt diſſect, and then attentively conſider theſe parts.

If the tibia and fibula be both broken, they are both generally diſplaced in ſuch manner, that the inferior extremity, or that connected with the foot, is drawn under that part of the fractured bone which is connected with the knee; making by this means a deformed, unequal tumefaction in the fractured part, and rendering the broken limb ſhorter than it ought to be, or than its fellow. And this is generally the caſe, let the fracture be in what part of the leg it may.

If the tibia only be broken, and no act of violence, indiſcretion, or inadvertence be committed, either on the part of the patient or of thoſe who conduct him, the limb moſt commonly preſerves its figure and length; the ſame thing generally happens if the fibula only be broken, in all that part of it, which is ſuperior to letter *A* in the annexed figure, or in any part of it between its upper extremity, and within two or three inches of its lower one.

I have already ſaid, and it will obviouſly appear to every one who examines it, that the ſupport of the body, and the due and proper uſe and execution of the office of the joint of the ancle, depend almoſt entirely on the perpendicular bearing of the tibia upon the aſtragalus, and on its firm connection with the fibula. If either of theſe be perverted or prevented, ſo that the former bone is forced from its juſt and perpendicular poſition on the aſtragalus; or if it be ſeparated by vio-

lence from its connection with the latter, the joint of the ancle will ſuffer a partial diſlocation internally *; which partial diſlocation cannot happen without not only a conſiderable extenſion, or perhaps laceration of the burſal ligament of the joint, which is lax and weak, but a laceration of thoſe ſtrong tendinous ligaments, which connect the lower end of the tibia with the aſtragalus and os calcis, and which conſtitute in great meaſure the ligamentous ſtrength of the joint of the ancle.

This is the caſe, when by leaping or jumping the fibula breaks in the weak part already mentioned, that is within two or three inches of its lower extremity. When this happens, the inferior fractured end of the fibula falls inward toward the tibia, that extremity of the bone which forms the outer ancle is turned ſomewhat outward and upward, and the tibia having loſt its proper ſupport, and not being of itſelf capable of ſteadily preſerving its true perpendicular bearing, is forced off from the aſtragulus inwards, by which means the weak burſal, or common ligament of the joint, is violently ſtretched, if not torn, and the ſtrong ones, which faſten the tibia to the aſtragalus and os calcis, are always lacerated; thus producing at the ſame time a perfect fracture and a partial diſlocation, to which is ſometimes added a wound in the integuments, made by the bone at the inner ancle. By this means, and indeed as a neceſſary conſequence, all the tendons which paſs behind or under, or are attached to the extremities of the tibia and fibula, or os calcis, have their natural direction and diſpoſition ſo altered, that inſtead of performing their appointed actions, they all contribute to the diſtortion of the foot, and that by turning it outward and upward.

When this accident is accompanied, as it ſometimes is, with a wound of the integuments of the inner ancle, and that made by the protruſion

* See the figure at the preceding page.

protruſion of the bone, it not infrequently ends in a fatal gangrene, unleſs prevented by timely amputation, though I have ſeveral times ſeen it do very well without. But in its moſt ſimple ſtate, unaccompanied with any wound, it is extremely troubleſome to put to rights, ſtill more ſo to keep it in order, and unleſs managed with addreſs and ſkill, is very frequently productive both of lameneſs and deformity ever after.

After what has been ſaid, a farther explanation why this is ſo is unneceſſary. Whoever will take even a curſory view of the diſpoſition of the parts, will ſee that it muſt be ſo. By the fracture of the fibula, the dilatation of the burſal ligament of the joint, and the rupture of thoſe which ſhould tie the end of the tibia firmly to the aſtragalus and os calcis, the perpendicular bearing of the tibia on the aſtragalus is loſt, and the foot becomes diſtorted; by this diſtortion the direction and action of all the muſcles already recited are ſo altered, that it becomes (in the uſual way of treating this caſe) a difficult matter to reduce the joint, and, the ſupport of the fibula being gone, a more difficult one to keep it in its place after reduction. If it be attempted with compreſs and ſtrict bandage, the conſequence often is a very troubleſome, as well as painful ulceration of the inner ancle, which very ulceration becomes itſelf a reaſon why ſuch kind of preſſure and bandage can be no longer continued; and if the bone be not kept in its place, the lameneſs and deformity are ſuch, as to be very fatiguing to the patient, and to oblige him to wear a ſhoe with an iron, or a laced buſkin, or ſomething of that ſort, for a great while, or perhaps for life.

All this trouble, pain, difficulty, and inconvenience, are occaſioned by putting and keeping the limb in ſuch poſition as neceſſarily puts the muſcles into action, or into a ſtate of reſiſtance, which in this caſe is the ſame. This occaſions the difficulty in reduction, and the diffi-

culty in keeping it reduced; this diſtorts the foot, and by pulling it outward and upward makes that deformity, which always accompanies ſuch accident; but if the poſition of the limb be changed, if by laying it on its outſide, with the knee moderately bent, the muſcles forming the calf of the leg, and thoſe which paſs behind the fibula and under the os calcis, are all put into a ſtate of relaxation and non-reſiſtance, all this difficulty and trouble do in general vaniſh immediately; the foot may eaſily be placed right, the joint reduced, and by maintaining the ſame diſpoſition of the limb, every thing will in general ſucceed very happily, as I have many times experienced.

Two kinds of fracture there are, and only two that I can recollect (relative to the limbs) which do not admit of the bent poſition of the joints, I mean that of the proceſſus olecranon at the elbow, and that of the patella; in theſe a ſtraight poſition of the arm and leg is neceſſary; in the former to keep the fractured parts in contact till they are united, in the latter, to bring them as near to each other as may beſt ſerve the purpoſe of walking afterward.*

With

* Although a ſtraight poſition of the limb is neceſſary for the broken patella, yet this very poſition becomes ſo upon the ſame principle, as renders the bent poſture moſt advantageous in the broken tibia and femur, viz. the relaxation of the muſcles and tendons attached to the fractured bone.

Whoever will for a moment attend to the diſpoſition of the pieces in a patella, which has been broken tranſverſely, will ſee how little neceſſary or uſeful the many contrivances of bandages, ſtraps, compreſſes, buckles, buttons, &c. to be found in writers are, eſpecially all that part of them which are applied to the inferior fragment.

By the action of the united tendons of the extenſores muſcles of the leg, the ſuperior fragment is pulled upward and ſeparated from the inferior, but the latter remains nearly, if not abſolutely, where it was before the accident; there is nothing to act upon it, and therefore it cannot, nor does it move.

The extenſion of the leg puts the muſcles attached to the upper part of the broken bone into a ſtate of relaxation, and prevents their acting; and though a ſmall compreſs juſt

above

With regard to the fracture of the patella, an opinion has long and generally prevailed, which ſeems to me to have no foundation in truth, or (when duly conſidered) even in probability; it is, that the great degree of ſtiffneſs in the joint of the knee, which is ſometimes found to be the conſequence of this kind of fracture, is owing to, or produced by, a quantity of callus falling into it from the edges of the broken bone, and that the nearer the broken pieces are brought to each other, the more likely ſuch conſequence is.

Every part of this doctrine ſeems equally abſurd. In the firſt place, the fractured bone is by no means capable of ſupplying ſuch a quantity of callus as to produce this end, unleſs it may be ſuppoſed to run from it as ſolder from a plumber's ladle; in the ſecond place, if this was the caſe, the moſt likely, and indeed the only probable way of preventing the depoſition of ſuch juice, muſt be by bringing the broken pieces into cloſe contact; and in the third place, there is no authority from the appearance of ſuch joints after death, (at leaſt as far as my experience goes) to ſuppoſe this to be the caſe, or to countenance ſuch opinion. The cauſe therefore of this rigidity, which is now and then found to attend the broken patella, muſt be ſought for elſewhere, viz. in the long reſt and confinement of the joint, as a means uſed by many to procure exact union; in miſchief done to the ligament, which is formed by the united tendons of the four extenſor muſcles of the leg, at the time of and by the fracture; and in the nature of the fracture itſelf, that is, the manner in which the bone ſhall happen to be broken.

But, be all this as it may, the fact undoubtedly is, that they walk beſt after ſuch accident, whoſe patella has been broken tranſverſely, and that into two nearly equal fragments; whoſe confinement to the bed has been ſhort, that is, no longer than while the inflammation laſted; whoſe knee, after ſuch period, has been daily and moderately moved;

above this piece, with a moderate bandage, may be uſeful toward retaining it, yet it is the poſition of the leg which muſt keep the broken piece down, and effect the cure.

moved; and in whom the broken pieces are not brought into exact contact, but lie at ſome ſmall diſtance from each other.

I cannot take leave of this ſubject of ſimple fractures, without mentioning a circumſtance relative to them, which although, when rightly underſtood, is of little or no importance, yet by being miſunderſtood, becomes frequently of conſiderable conſequence.

I mean, the uſe of the term, *riſing end of a broken bone.*

By the expreſſion, any one unacquainted with theſe things would be inclined to think, that the prominent part of a broken bone roſe, or was elevated from its natural place; and became by ſuch riſing ſuperior to the other part or extremity of the fracture. This would certainly be the idea of an ignorant perſon, and as ſuch would be of little conſequence; but by the practice of many, who call themſelves ſurgeons, it is as certainly their idea alſo, and this renders it a matter of great conſequence. Many inſtances are producible, in which our conduct is in great meaſure regulated by the language which we uſe. Having no ideas annexed to our words, leads us into abſurdity and unintelligibility, but falſe ones influence us ſtill more, and frequently produce very material errors.

The fiſtula lachrymalis, the fiſtula in perinæo, and that in ano, are glaring proofs of this, and my preſent ſubject is full as much ſo: for upon the erroneous idea annexed to the term *riſing end*, ſtands all the abſurd practice of compreſs, bolſter, and ſtrict bandage in the caſes of ſimple fracture.*

The

* I was ſome few years ago carried by a ſurgeon, ſince dead, to ſee a contrivance of his own to keep down the riſing end of a broken tibia. It was ſomewhat upon the principle of Petit's tourniquet, and calculated to act by compreſſion. I told him my opinion freely, but the inventor was wedded to his invention; and the firſt ſimple fracture he applied it to, he thereby converted into a compound one, by preſſing the bone through the ſkin.

The truth is, that there is really no *riſing end* to a broken bone; I mean, when applied, as the term uſually is, to the leg, thigh, and clavicle. There is indeed a ſuperior or prominent end or part, and an inferior or depreſſed one, but the former of theſe is in its proper place, from which it cannot by art be moved; and the latter, which is not in its proper place, is very capable by art of being put into it.

Perhaps this may to ſome appear a mere play of words, a nominal diſtinction, without a real difference; but when the influence, which a right or wrong idea of this produces on practice is attended to, the conſequence will be obvious and ſerious.

When a collar bone, os femoris, or tibia and fibula are broken, by the action of the muſcles, by the motions of the patient, and by the mere weight of the inferior part of the arm, thigh, or leg, the fractured ends of ſuch bones are diſplaced, and always diſplaced in ſuch manner, that the inequality occaſioned neceſſarily by ſuch diſplacement, proceeds from the inferior end of the fractured bone being retracted or drawn under the ſuperior: this produces a tumefaction or unequal riſing, and the upper extremity of the fracture is therefore called the riſing end of it. Now the man who regards this riſing end as that part of the fracture which has by ſuch riſing got out of its place, and not as having accidentally become the prominent part merely by the inſinuation or retraction of the other part underneath it, will go to work with bolſter, compreſs, and bandage, in order to bring and keep ſuch end down; by which means he will give his patient conſiderable pain, and while he depends on ſuch means alone, will moſt certainly be fruſtrated in his intention and expectation, the means not being adequate to the propoſed end. But the man who looks on this in the true light, that is, who looks on the ſuperior part, as being in its proper place, and the inferior, as being diſplaced by the weight of the limb, and the action of the muſcles, will know,

that

that by the mere poſition of ſuch limb, he ſhall be able to remedy all the inconvenience and deformity, as far as they are by art capable of remedy, without the parade, or the fatigue of uſeleſs apparatus.

He will, for example, know that the prominent part of a broken clavicle, that part of it which is next to the ſternum, is juſt where it ſhould be; and that the inferior part, that which is connected with the ſcapula, is out of its place, by being drawn down by the weight of the arm; and therefore inſtead of loading, as is uſual, the prominent part with quantities of compreſs, which never can do any ſervice, he, by a proper elevation of the arm, will bring the lower end upward into contact with the other; and thereby, with very little trouble, eaſily accompliſh what he never can do in any other manner, however operoſe.

The ſame thing will happen from the ſame principles in the leg and thigh; a prominence, or a riſing end, there always will be, but that riſing end is never to be brought down by any preſſure from compreſs or bandage; the fallen or inferior one muſt always be brought up to it by the proper poſition of the reſt of the limb: this will always remove the inequality as far as it is removeable, and nothing elſe can.*

* In a profeſt regular treatiſe on this ſubject, it would be right to take notice of what may be called the infortunia or accidental evils, which ſometimes accompany even ſimple fractures; ſuch are, diſeaſe ariſing from injury done to the medullary membrane, within the bones, in bad habits: hæmorrhage, or a ſpecies of ſpurious aneuriſm, from a wound of the interoſſeal artery, between the tibia and fibula, or of either of the carpal arteries: miſchief from the fracture becoming accidentally the ſeat of the criſis of a fever, deficiency of callus, or the accident of the broken bone not uniting: the fractured limb becoming the ſeat of an eryſipelas, terminating in a ſlough of the common membrane and perioſteum: the gelatinous juice or callus, which ſhould unite the fracture, being in ſo morbid a ſtate, as to produce a kind of caries with exoſtoſis, inſtead of its doing its proper duty, &c. Of all theſe there are examples, but they do not come within the plan which I preſcribed to myſelf when I began theſe papers.

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COMPOUND FRACTURES.

I Uſe the term compound fracture in the ſenſe in which the Engliſh have always uſed it; that is, to imply a broken bone complicated with a wound.

In this kind of caſe the firſt object of conſideration is, whether the preſervation of the fractured limb can, with ſafety to the patient's life, be attempted; or, in other words, whether the probable chance of deſtruction, from the nature and circumſtances of the accident, is not greater than it would be from the operation of amputation. Many things may concur to make this the caſe. The bone or bones being broken into many different pieces, and that for a conſiderable extent, as happens from broad wheels, or other heavy bodies of large ſurface, paſſing over, or falling on ſuch limbs; the ſkin, muſcles, tendons, &c. being ſo torn, lacerated and deſtroyed, as to render gangrene and mortification the moſt probable and moſt immediate conſequence; the extremities of the bones forming a joint being cruſhed, or as it were comminuted, and the ligaments connecting ſuch bones being torn and ſpoiled, are, among others, ſufficient reaſons for propoſing and for performing immediate amputation. Reaſons, which (notwithſtanding any thing that may have been ſaid to the contrary) long and reiterated experience has approved, and which are vindicable upon every principle of humanity, or chirurgic knowledge.

When a ſurgeon ſays, that a limb, which has juſt ſuffered a particular kind of compound fracture, ought rather to be immediately cut off, than that any attempt ſhould be made for its preſervation, he does not mean by ſo ſaying, that it is abſolutely impoſſible for ſuch limb to be preſerved at all events; he is not to be ſuppoſed to mean ſo much in general, though ſometimes even that will be obvious; all that he can truly and juſtly mean is, that from the experience of all time it has been found, that the attempts to preſerve limbs ſo circumſtanced, have moſt frequently been fruſtrated by the death of the patients, in conſequence of ſuch injury; and that from the ſame experience it has been found, that the chance of death from amputation is by no means equal to that ariſing from ſuch kind of fracture.

Every man knows, that apparently deſperate caſes are ſometimes cured; and that limbs ſo ſhattered and wounded, as to render amputation the only *probable* means for the preſervation of life, are now and then ſaved. This is an uncontroverted fact, but a fact which proves very little againſt the common opinion; becauſe every man of experience alſo knows, that ſuch eſcapes are very rare, much too rare to admit of being made precedents, and that the majority of ſuch attempts fail.*

This

* The baron Van Swieten, writing as many others have done, that is, theoretically on ſurgery, adviſes us, in the caſe of very bad compound fractures, which may moſt probably require amputation, to defer the operation, until we have tried the force of antiſeptic fomentations and applications of like kind for two or three days; and this opinion and advice he builds, in ſome meaſure, on a remarkable ſucceſs of La Motte, in a ſeemingly deſperate caſe, of a man's leg maſhed by the wheel of a heavy carriage.

That De La Motte's patient eſcaped, I make no doubt, becauſe he has ſaid ſo; but the ſurgeon ſhewed much more raſhneſs in attempting to ſave ſuch a limb, than he would have done in the amputation of it; the operation would have been the more juſtifiable practice.—With regard to the baron's advice, to ſtay two or three days, I take the liberty to add, that if you do that, ſtay ſeveral more; for at the end of that time (I mean two

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This conſideration relative to amputation is of the more importance, becauſe it moſt frequently requires immediate determination; every minute of delay is, in many inſtances, to the patient's diſadvantage; and a very ſhort ſpace of time indeed, frequently makes all the difference between probable ſafety and fatality. If theſe caſes in general would admit of deliberation for two or three days, and during that time ſuch circumſtances might be expected to ariſe, as ought neceſſarily to determine the ſurgeon in his conduct, without adding to the patient's hazard, the difference would be conſiderable; the former would not ſeem to be ſo precipitate in his determination, as he is frequently thought to be; and the latter, being more convinced of the neceſſity, would ſubmit to it with leſs reluctance. But unhappily for both parties, this is ſeldom the caſe; and the firſt opportunity having been neglected or not embraced, we are very frequently denied another. Here therefore the whole exertion of a man's judgment is required, that he may neither raſhly and unneceſſarily deprive his patient of a limb, nor through a falſe tenderneſs or timidity, ſuffer him to periſh, by endeavouring to preſerve ſuch limb. Some degree of addreſs is alſo neceſſary upon ſuch occaſion, in order to convince the patient, that what ſeems to be determined upon haſtily and with precipitation, will not ſafely admit of longer deliberation.

The limb being thought capable of preſervation, the next conſideration is the reduction of the fracture. The eaſe or difficulty attending this depends, not only on the general nature of the caſe, but on the particular diſpoſition of the bone with regard to the wound.

or three days) the patient will have very little chance indeed from the operation, much leſs than he would have had at the time of the accident.

I ſhould be very ſorry to be thought a patron or an adviſer of raſhneſs or cruelty; but in what I have here ſaid, I believe I ſhall have every man in the profeſſion, who has either true humanity or ſound judgment founded on experience, on my ſide.

If the bone be not protruded forth, the trouble of reducing, and of placing the fracture in a good poſition, will be much leſs than if the caſe be otherwiſe; and in the caſe of protruſion or thruſting forth of the bone or bones, the difficulty is always in proportion to the comparative ſize of the wound, through which ſuch bone has paſſed. In a compound fracture of the leg or thigh, it is always the upper part of the broken bone which is thruſt forth. If the fracture be of the tranſverſe kind, and the wound large, a moderate degree of extenſion will in general eaſily reduce it; but if the fracture be oblique, and terminates, as it often does, in a long ſharp point, this point very often makes its way through a wound no larger than juſt to permit ſuch extenſion. In this caſe, the very placing the leg in a ſtraight poſition, in order to make extenſion, obliges the wound or orifice to gird the bone tight, and makes all that part of it, which is out of ſuch wound, preſs hard on the ſkin of the leg underneath it. In theſe circumſtances, all attempts for reduction in this manner will be found to be impracticable; the more the leg is ſtretched out, the tighter the bone will be begirt by the wound, and the more it will preſs on the ſkin underneath.

Upon this occaſion, it is not very unuſual to have recourſe to the ſaw, and by that means to remove a portion of the protruded bone.

I will not ſay that this is always or abſolutely unneceſſary or wrong, but it moſt certainly is frequently ſo. In ſome few inſtances, and in the caſe of extreme ſharp-pointedneſs of the extremity of the bone, it may be, and undoubtedly is right: but in many inſtances, it is totally unneceſſary.

The two moſt proper means of overcoming this difficulty are, change of poſture of the limb, and enlargement of the wound. In many caſes the former of theſe, under proper conduct, will be found fully ſufficient; and where it fails, the latter ſhould always be made

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uſe of. Whoever will attend to the effect, which putting the leg or thigh (having a compound fracture and protruded bone) into a ſtraight poſition always produces; that is, to the manner in which the wound in ſuch poſition girds the bone, and to the increaſed difficulty of reduction thereby induced, and will then, by changing the poſture of ſuch limb from an extended one, to one moderately bent, obſerve the alteration thereby made, in both the juſt-mentioned circumſtances, will be ſatisfied of the truth of what I have ſaid, and of the much greater degree of eaſe and practicability of reduction in the bent, than in the extended poſition, that is, in the relaxed, than in the ſtretched ſtate of the muſcles. Reduction being found impracticable, either by extenſion or change of poſture, the obvious and neceſſary remedy for this difficulty is enlargement of the wound. This to ſome practitioners, who have not ſeen much of this buſineſs, appears a diſagreeable circumſtance, and therefore they endeavour to avoid it; but their apprehenſions are in general groundleſs and ill-founded; in enlarging the wound there is neither difficulty nor danger, it is the ſkin only which can require diviſion, and in making ſuch wound there can be no poſſible hazard. It is needleſs to ſay that the diviſion ſhould be ſuch as to render reduction eaſy; or to remind the practitioner, that ſuch enlarged opening may ſerve very good future purpoſes, by making way for the extraction of fragments, and the diſcharge of matter, ſloughs, &c.

If the bone be broken into ſeveral pieces, and any of them be either totally ſeparated, ſo as to lie looſe in the wound, or if they be ſo looſened and detached as to render their union highly improbable, all ſuch pieces ought to be taken away; but they ſhould be removed with all poſſible gentleneſs, without pain, violence or laceration, without the riſque of hæmorrhage, and with as little poking into the wound as poſſible. If the extremities of the bone be broken into ſharp points,

which

which points wound and irritate the ſurrounding parts, they muſt be removed alſo. But the whole of this part of the treatment of a compound fracture ſhould be executed with great caution; and the practitioner ſhould remember, that if the parts ſurrounding the fracture be violated, that is, be torn, irritated, and ſo diſturbed as to excite great pain, high inflammation, &c. it is exactly the ſame thing to the patient, and to the event of the caſe, whether ſuch violence be the neceſſary conſequence of the fracture, or of his unneceſſary, and awkward manner of poking into, and diſturbing the wound. The great objects of fear and apprehenſion in a compound fracture (that is, in the firſt or early ſtate of it) are, pain, irritation, and inflammation; theſe are to be avoided, prevented, and appeaſed by all poſſible means, let every thing elſe be as it may; and although certain things are always recited, as neceſſary to be done, ſuch as removal of fragments of bone, of foreign bodies, &c. &c. &c. yet it is always to be underſtood, that ſuch acts may be performed without prejudicial or great violence, and without adding at all to the riſque or hazard neceſſarily incurred by the diſeaſe.

Reduction of or ſetting a compound fracture is the ſame as in the ſimple; that is, the intention in both is the ſame, viz. by means of a proper degree of extenſion to obtain as apt a poſition of the ends of the fracture with regard to each other, as the nature of the caſe will admit, and thereby to produce as perfect and as ſpeedy union as poſſible.

To repeat in this place what has already been ſaid under the head of extenſion, would be tedious and unneceſſary. If the arguments there uſed for making extenſion, with the limb ſo moderately bent as to relax the muſcles, and take off their power of reſiſtance, have any force at all, they muſt have much more when applied to the preſent caſe: if it be allowed to be found very painful to extend, or to put or keep on the ſtretch, muſcles which are not at all or but ſlightly wounded, and only

only liable in ſuch extenſion to be pricked and irritated, it is ſelf-evident that it muſt be much more ſo when the ſame parts are torn and wounded conſiderably; when the ends of the fractured bone have made their way quite through them, divided the ſkin, and laid all open to the acceſs of the air.

Every conſequence which does or may be ſuppoſed to flow from wound, pain, or irritation, in conſequence of violence, muſt neceſſarily be much greater, when a lacerated wound, and that made by the bone, is added to the fracture; not to mention the ills arifing from extending or ſtretching out muſcles already torn or half divided.

One moment's reflection muſt be ſufficient to convince any reaſonable man: but experience is the only proper teſt of all theſe kinds of things. Let this method of treatment then, be fairly and properly ſubjected to it; and if the great advantage of the one over the other does not appear, that is, if the leſs ſenſation of pain by the patient, and the more happy, more perfect, and more expeditious accompliſhment of his purpoſe by the ſurgeon, do not determine greatly in favour of relaxed poſition, I am, and have for a conſiderable length of time, been greatly miſtaken.

The wound dilated, (if neceſſary) looſe pieces removed, (if there were any) and the fracture reduced, and placed in the beſt poſſible poſition, the next thing to be done is to apply a dreſſing.

On this ſubject a great deal has been ſaid by writers, particularly by ſuch of them as have implicit faith in external applications; but, in order to be able to execute this part of the proceſs properly, a man has only to aſk himſelf, What are the intentions which, by any kind of dreſſing to a compound fracture, he means to aim at the accompliſhment of? And a rational anſwer to this will give him all that he can want to know.

The dreſſing neceſſary in a compound fracture is of two kinds, viz. that for the wound, and that for the limb. By the former, we mean to maintain a proper opening for the eaſy and free diſcharge of gleet, ſloughs, matter, extraneous bodies, or fragments of bone, and this in ſuch manner, and by ſuch means, as ſhall give the leaſt poſſible pain or fatigue, ſhall neither irritate by its qualities, nor oppreſs by its quantity, nor by any means contribute to the detention or lodgment of what ought to be diſcharged. By the latter, our aim ſhould be the prevention or removal of inflammation, in order, if the habit be good, and all other circumſtances fortunate, that the wound may be healed, by what the ſurgeons call the firſt intention, that is, without ſuppuration or abſceſs; or that not being practicable, that gangrene and mortification, or even very large ſuppuration may be prevented, and ſuch a moderate and kindly degree of it eſtabliſhed, as may beſt ſerve the purpoſe of a cure. The firſt therefore, or the dreſſing for the wound, can conſiſt of nothing better, or indeed ſo good, as ſoft dry lint, laid on ſo lightly as juſt to abſorb the ſanies, but neither to diſtend the wound, or be the ſmalleſt impediment or obſtruction to the diſcharge of matter. This lint ſhould be kept clear of the edges, and the whole of it ſhould be covered with a pledgit ſpread with a ſoft eaſy digeſtive. The times of dreſſing muſt be determined by the nature of the caſe; if the diſcharge be ſmall or moderate, once in twenty-four hours will be ſufficient; but if it be large, more frequent dreſſing will be neceſſary, as well to prevent offence, as to remedy the inconveniences ariſing from a great diſcharge of an irritating ſharp ſanies.

The method of treating the limb, with a view to the prevention of ſuch accidents and ſymptoms, as pain, inflammation, and laceration of parts are likely to produce, is different with different practitioners; ſome uſing from the very firſt, relaxing, greaſy, applications; others applying medicines of very different nature. Both theſe may be right conditionally,

conditionally, that is, according to different circumſtances in the caſe, but they cannot be equally ſo in the ſame circumſtances.

Many practitioners are accuſtomed to envelope compound fractures in a ſoft, warm, relaxing cataplaſm from the very firſt; whether the limb be in a tenſe ſwollen ſtate, or not. This, if I may take the liberty of ſaying ſo, appears to me to be injudicious. When from neglect, from length of time paſſed without aſſiſtance, from miſconduct or drunkenneſs in the patient, from aukwardneſs and unhandineſs in the aſſiſtants, or from any other cauſe, a tenſion has taken poſſeſſion of the limb, and it is become tumid, ſwollen and painful, a warm cataplaſm is certainly the beſt and moſt proper application that can be made, and that for very obvious reaſons; the ſtate of the parts under theſe circumſtances is ſuch, that immediate union is impoſſible, and nothing but a free and plentiful ſuppuration can diſſipate or remove impending miſchief: every thing therefore which can tend toward relaxing the tenſe, ſwollen, and irritable ſtate of the parts concerned, muſt neceſſarily be right; the one thing aimed at, (plentiful ſuppuration) cannot be accompliſhed without it. But when the parts are not in this ſtate, the intention ſeems to be very different. To relax ſwollen parts, and to appeaſe pain and irritation by ſuch relaxation, is one thing; to prevent inflammatory defluxion and tumefaction is certainly another; and they ought to be aimed at by very different means. In the former, a large ſuppuration is a neceſſary circumſtance of relief, and the great means of cure; in the latter it is not, and a very moderate degree of it is all that is required. The warm cataplaſm therefore, although it be the beſt application that can be made uſe of in the one caſe, is certainly not ſo proper in the other, as applications of a more diſcutient kind, ſuch as mixtures of ſpirit. vini, vinegar and water, with crude ſal ammoniac, ſpirit. Mindereri, acet. litharg. and medicines of this claſs, in whatever form the ſurgeon may chuſe. By

theſe, in good habits, in fortunately-circumſtanced caſes, and with the aſſiſtance of what ſhould never be neglected, I mean phlebotomy, and the general antiphlogiſtic regimen, inflammation may ſometimes be kept off, and a cure accompliſhed, without large collections or diſcharges of matter, or that conſiderable degree of ſuppuration, which, tho' neceſſary in ſome caſes, and almoſt unavoidable in others, are and muſt be rather promoted and encouraged than retarded or prevented, by warm relaxing applications of the pultice kind.

Compound fractures in general require to be dreſſed every day; and the wounded parts not admitting the ſmalleſt degree of motion without great pain, perfect quietude becomes as neceſſary as frequent dreſſing.

The common bandage therefore (the roller) has always in this caſe been laid aſide, and what is called the eighteen-tailed bandage ſubſtituted, very judiciouſly, in its place. Of this I have already ſpoken ſo largely, as to make repetition unneceſſary.

Splints, that is, ſuch ſhort ones as are moſt commonly made uſe of in ſimple fractures, are by all forbid in the compound, and that for the ſame reaſon which ought to have prevented them from having ever been uſed in the former, viz. becauſe the probable good to be derived from them can be but little; and the probable miſchief is obvious and conſiderable.

But although ſhort ſplints are for many reaſons palpably improper, in both caſes, yet thoſe of proper length, thoſe which reach from joint to joint, comprehend them both, and applied on each ſide of the leg only, are very uſeful both in the ſimple and in the compound fracture, as they may, thus applied, be made to keep the limb more conſtantly ſteady and quiet, than it can be kept without them.

With regard to poſition of the limb, I have already been ſo explicit, when ſpeaking of the ſimple fracture, that to ſay any thing more about it here would be an abuſe of the reader's time and patience.

The

The only, or the material difference between a ſimple and a compound fracture, as far as relates to this part of the treatment, is, that as the parts ſurrounding the broken bone in the latter are more injured, and conſequently more liable to irritation, pain, inflammation, and all their conſequences, therefore every method and means, by which the alleviation of ſuch ſymptoms, and the prevention of ſuch conſequences can be obtained, is ſtill more neceſſary and requiſite. Among theſe the poſture of the limb is ſo principal a circumſtance, that without its concurrence every other will be fruitleſs. The points to be aimed at are, the even poſition of the broken parts of the bone, and ſuch diſpoſition of the muſcles ſurrounding them, as is moſt ſuitable to their wounded, lacerated ſtate, as ſhall be leaſt likely to irritate them, by keeping them on the ſtretch, or to produce high inflammation, and at beſt large ſuppuration. Theſe, I ſay, are the ends to be purſued; and how much the poſition of the limb does, and muſt neceſſarily contribute to the advantage or diſadvantage juſt recited, muſt be ſo obvious to any body capable of reflection, that nothing more need be ſaid about it.

At the beginning of theſe ſheets, I have ſaid, that it was not my intention to write a regular treatiſe, but only to throw out a few hints, which I hoped might prove uſeful to ſuch as have not yet received better information. The part of my ſubject at which I am now arrived, does not indeed admit of much more: a few general precepts are all which a writer can give; the particular method of conducting each particular caſe, muſt be determined by the nature of that caſe, and by the judgment of the ſurgeon.

Every body knows, or ought to know, that theſe caſes, of all others, require at firſt the moſt rigid obſervance of the antiphlogiſtic regimen; that pain is to be appeaſed, and reſt obtained, by anodynes; that inflammation is to be prevented or removed, by free and

frequent bleeding, by keeping the body open, and by the adminiſtration of ſuch medicines as are beſt known to ſerve ſuch purpoſes.---And that, during this firſt ſtate or ſtage, the treatment of the limb muſt be calculated, either for the prevention of inflammatory tumefaction, by ſuch applications as are in general known by the title of diſcutients; or, ſuch tumor and tenſion having already taken poſſeſſion of the limb, that warm fomentation, and relaxing and emollient medicines are required.

If theſe, according to the particular exigence of the caſe, prove ſucceſsful, the conſequence is, either a quiet eaſy wound, which ſuppurates very moderately, and gives little or no trouble; or a wound, attended at firſt with conſiderable inflammation, and that producing large ſuppuration, with great diſcharge and troubleſome formation and lodgment of matter. If, on the other hand, our attempts do not ſucceed, the conſequence is gangrene and mortification.

Theſe are the three general events or terminations of a compound fracture; and according to theſe muſt the ſurgeon's conduct be regulated.

In the firſt inſtance, he has indeed nothing to do but to avoid doing miſchief, either by his manner of dreſſing, or by diſturbing the limb. Nature let alone will accompliſh her own purpoſe; and art has little more to do than to preſerve the due poſition of the limb, and to take care that the dreſſing applied to the wound proves no impediment.

In the ſecond ſtage, that of formation and lodgment of matter, in conſequence of large ſuppuration, all a ſurgeon's judgment will ſometimes be required in the treatment both of the patient and his injured limb. Inlargement of the preſent wound, for the more convenient diſcharge of matter; * new or counter-openings for the ſame purpoſe,

or

* It is a practice with ſome, from a timidity in uſing a knife, to make uſe of bolſters and plaſter-compreſſes for the diſcharge of lodging-matter. Where another, or a counter-

or for the extraction of fragments of broken or exfoliated bone, will very frequently be found neceſſary, and muſt be executed. In the doing this, care muſt be taken that what is requiſite be done, and no more; and that ſuch requiſite operations be performed with as little diſturbance and pain as poſſible; the manner of doing buſineſs of this kind, will make a very material difference in the ſufferings of the patient.

Very contrary, or at leaſt very different intentions, ſeem to me to require the ſurgeon's very particular attention in the two parts of this ſtage of the diſeaſe.

Previous to large ſuppuration, or conſiderable collections and lodgments of matter, tumefaction, induration, and high inflammation, attended with pain, irritation, and fever, require evacuation by phlebotomy, an open belly, and antiphlogiſtic remedies, as well as the free uſe of anodynes, and ſuch applications to the limb as may moſt ſerve the purpoſe of relaxation. But the matter having been formed and let out, and the pain, fever, &c. which were ſymptomatic thereof, having diſappeared or ceaſed, the uſe and purpoſe of ſuch medicines and ſuch applications ceaſes alſo, and they ought therefore to be diſcontinued. By evacuation, &c. the patient's ſtrength has neceſſarily (and indeed properly) been reduced; by cataplaſm, &c. the parts have been ſo relaxed as to procure an abatement or ceſſation of inflammation, a ſubſidence of tumefaction, and the eſtabliſhment of a free ſuppuration; but theſe ends once fairly and fully anſwered, another intention ariſes, which regards the ſafety and well-doing of the patient, nearly,

ter-opening can conveniently and ſafely be made, it is always preferable; the compreſs ſometimes acting diametrically oppoſite to the intention with which it is applied, and contributing to the lodgment by confining the matter; beſide which, it requires a greater degree of preſſure to make it efficacious, than a limb in ſuch circumſtances generally can bear.

nearly, if not full as much as the former, which intention will be neceſſarily fruſtrated by purſuing the method hitherto followed. The patient now will require refection and ſupport, as much as he before ſtood in need of reduction; and the limb, whoſe indurated and inflamed ſtate hitherto required the emollient and relaxing pultice, will now be hurt by ſuch kind of application, and ſtand in need of ſuch as are endued with contrary qualities, or at leaſt ſuch as ſhall not continue to relax. Good, light, eaſily digeſted nutriment, and the Peruvian bark, will beſt anſwer the purpoſe of internals.; the diſcontinuation of the cataplaſms, and the application of medicines of the corroborating kind, are as neceſſary with regard to externals.*

In ſhort, if there be any rationale in the uſe of the cataplaſm in the firſt ſtage, its impropriety in the ſecond muſt be evident from the ſame principles. So alſo with regard to evacuation, and the antiphlogiſtic regimen, when all the good propoſed to be obtained by them has been received, a purſuit of the ſame method muſt become injurious, and that for the ſame reaſon why it was before neceſſary and beneficial.

A non-attention to this has, I believe, been not infrequently the cauſe of the loſs both of limbs and lives.

Every body who is acquainted with ſurgery knows, that in the caſe of bad compound fracture, attended with large ſuppuration, it ſometimes happens, even under the beſt and moſt judicious treatment, that the diſcharge becomes too great for the patient to ſuſtain; and that after all the fatigue, pain and diſcipline, which he has undergone, it becomes

* It is ſurpriſing how large and how diſagreeable a diſcharge will be made for a conſiderable length of time, in ſome inſtances, from the detenſion and irritation of a ſplinter of bone. If therefore ſuch diſcharge be made, and there be neither ſinus nor lodgment to account for it, and all other circumſtances are favourable, examination ſhould always be made, in order to know whether ſuch cauſe does not exiſt, and if it does, it muſt be gently and carefully removed.

becomes neceſſary to compound for life by the loſs of the limb.* This, I ſay, does ſometimes happen under the beſt and moſt rational treatment; but I am convinced that it alſo is now and then the conſequence of purſuing the reducing, the antiphlogiſtic, and the relaxing plan too far. I would therefore take the liberty ſeriouſly to adviſe the young practitioner, to attend diligently to his patient's pulſe and general ſtate, as well as to that of his fractured limb and wound; and when he finds all febrile complaint at an end, and all inflammatory tumor and hardneſs gone, that his patient is rather languid than feveriſh, that his pulſe is rather weak and low than hard and full, that his appetite begins to fail, and that he is inclined to ſweat or purge without aſſignable cauſe, and this in conſequence of a large diſcharge of matter from a limb which has ſuffered great inflammation, but which is now become rather ſoft and flabby than hard and tumid; that he will in ſuch circumſtances ſet about the ſupport of his patient, and the ſtrengthening of the diſeaſed limb *totis viribus*; in which I am from experience ſatisfied, he may often be ſucceſsful, where it may not be generally expected that he would. At leaſt he will have the ſatisfaction of having made a rational attempt; and if he is obliged at laſt to have recourſe to amputation, he will perform it, and his patient will ſubmit to it, with leſs reluctance than if no ſuch trial had been made.

I have ſaid, that a compound fracture either unites and heals as it were by the firſt intention, which is the caſe of ſome of the lucky few, (and was my own;) or it is attended with high inflammation, multiplied abſceſſes, and large ſuppuration, demanding all a ſurgeon's attention

* There is one circumſtance relative to compound fractures, which perhaps may be deemed worth noting; which is, that I do not remember ever to have ſeen it neceſſary to amputate a limb for a compound fracture, on account of the too great diſcharge, in which the fracture had been united. In all thoſe caſes, where the operation has been found neceſſary on account of the drain, the fracture has always been perfectly looſe and diſunited.

tion and ſkill; and even then ſometimes ending in the loſs of limb, or life, or both; or, that all our attempts prove fruitleſs from the firſt, and gangrene and mortification are the inevitable conſequence of the accident.

The two firſt I have already ſpoken to, the laſt only remains.

Gangrene and mortification are ſometimes the inevitable conſequences of the miſchief done to the limb at the time that the bone is broken; or they are the conſequences of the laceration of parts made by the mere protruſion of the ſaid bone.

They are alſo ſometimes the effect of improper or negligent treatment; of great violence uſed in making extenſion; of irritation of the wounded parts, by poking after, or in removing fragments or ſplinters of bone; of painful dreſſings; of improper diſpoſition of the limb, and of the neglect of phlebotomy, anodynes, evacuation, &c. Any, or all theſe, are capable either of inducing ſuch a ſtate of inflammation as ſhall end in a gangrene, or of permitting the inflammation, neceſſarily attendant upon ſuch accident, to terminate in the ſame event.

When ſuch accident or ſuch diſeaſe is the mere conſequence of the injury done to the limb, either at the time of or by the fracture, it generally makes its appearance very early; in which caſe alſo, its progreſs is generally too rapid for art to check. For theſe reaſons, when the miſchief ſeems to be of ſuch nature as that gangrene and mortification are moſt likely to enſue, no time can be ſpared, and the impending miſchief muſt either be ſubmitted to or prevented by early amputation. I have already ſaid, that a very few hours make all the difference between probable ſafety and deſtruction. If we wait till the diſeaſe has taken poſſeſſion of the limb, even in the ſmalleſt degree, the operation will ſerve no purpoſe, but that of accelerating the patient's death. If we wait for an apparent alteration in the part, we ſhall have

waited

waited until all opportunity of being really ſerviceable is paſt. The diſeaſe takes poſſeſſion of the cellular membrane ſurrounding the large blood veſſels and nerves, ſome time before it makes any appearance in the integuments; and will always be found to extend much higher in the former part, than its appearance in the latter ſeems to indicate. I have more than once ſeen the experiment made of amputating, after a gangrene has been begun, but I never ſaw it ſucceed; it has always haſtened the patient's deſtruction.

As far therefore as my experience will enable me to judge, or as I may from thence be permitted to dictate, I would adviſe that ſuch attempt ſhould never be made; but the firſt opportunity having been neglected or not embraced, all the power of the chirurgic art is to be employed in aſſiſting nature to ſeparate the diſeaſed part from the ſound; an attempt which now and then, under particular circumſtances, has proved ſucceſsful, but which is ſo rarely ſo, as not to be much depended upon.

If the parts are ſo bruiſed and torn, that the circulation through them is rendered impracticable, or if the gangrene is the immediate effect of ſuch miſchief, the conſequence of omitting amputation, and of attempting to ſave the limb is, as I have already obſerved, moſt frequently very early deſtruction: but if the gangrenous miſchief be not merely and immediately the effect of the wounded ſtate of the parts, but of high inflammation, badneſs of general habit, improper diſpoſition of the limb, &c. it is ſometimes in our power ſo to alleviate, correct, and alter theſe cauſes, as to obtain a truce with the diſeaſe, and a ſeparation of the unſound parts from the ſound. The means whereby to accompliſh this end muſt, in the nature of things, be varied according to the producing cauſes or circumſtances: the ſanguine and bilious muſt be lowered and emptied; the weak and debilitated muſt be aſſiſted by ſuch medicines as will add force to the vis

vitæ; and errors in the treatment of the wound or fracture muſt be corrected; but it is evident to common ſenſe, that for theſe there is no poſſibility of preſcribing any other than very general rules indeed. The nature and circumſtances of each individual caſe muſt determine the practitioner's conduct.

In general, inflammation will require phlebotomy and an open belly, together with the neutral antiphlogiſtic medicines; pain and irritation will ſtand in need of anodynes, and the Peruvian bark, joined in ſome caſes, and at ſome times, with thoſe of the cooling kind, at others with the cordial, will be found neceſſary and uſeful. So alſo tenſion and induration will point out the uſe of fomentation and warm relaxing cataplaſms, and the moſt ſoft and lenient treatment and dreſſing. But there are two parts of the treatment of this kind of caſe mentioned by the generality of writers, which I cannot think of as they ſeem to have done. One is, the uſe of ſtimulating antiſeptic applications to the wound; the other is, what is commonly called ſcarification of the limb. [Let it be remarked, that I ſpeak of both theſe, as preſcribed and practiſed while the gangrene is forming, as it were, and the parts are by no means mortified.] While the inflammatory tenſion ſubſiſts, alleviation of pain, and relaxation of the wounded and ſwollen parts, in order to obtain a ſuppuration, and conſequently a ſeparation, ſeem to conſtitute the intention, which ought to be purſued upon the moſt rational principles: warm irritating tinctures of myrrh, aloes and euphorbium; mixtures of tinct. myrrh. with mel. Ægyptiac. and ſuch kind of medicines, which are found to be frequently ordered, and indeed are frequently uſed, particularly in compound fractures produced by gun-ſhot, ſeem to me to be very oppoſite to ſuch intention, and very little likely to produce or to contribute to the one thing which ought to be aimed at, I mean the eſtabliſhment of a kindly ſuppuration. I know what is ſaid, in anſwer to this, viz.

that

that ſuch kind of ſtimulus aſſiſts nature in throwing off the diſeaſed parts: but this is a kind of language, which I believe will be found upon examination to have been firſt uſed without any ſufficient or good ground, and to have been echoed ever ſince upon truſt. It had its foundation in the opinion that gunſhot wounds were poiſonous, and that the mortification in them was the effect of fire, and it has been continued ever ſince, to the great detriment of many a ſufferer. A gunſhot wound, whether with or without fracture, is a wound accompanied with the higheſt degree of contuſion, and with ſome degree of laceration, and every greatly contuſed and lacerated wound requires the ſame kind of treatment which a gunſhot wound does, as far as regards the ſoft parts. The intention in both ought to be to appeaſe pain, irritation, and inflammation, to relax the indurated, and to unload the ſwollen parts, and by ſuch means to procure a kindly ſuppuration, the conſequence of which muſt be, a ſeparation of the diſeaſed parts from the ſound. Now whether this is likely to be beſt and ſooneſt accompliſhed by ſuch dreſſings and ſuch applications as heat and ſtimulate, and render the parts to which they are applied criſp and rigid, may fairly be left to common ſenſe to determine.

Scarification, in the manner and at the time in which it is generally ordered and performed, has never appeared to me to have ſerved any one good purpoſe. When the parts are really mortified, inciſions made of ſufficient depth will give diſcharge to a quantity of acrid and offenſive ichor; will let out the confined air, which is the effect of putrefaction, and thereby will contribute to unloading the whole limb; and they will alſo make way for the application of proper dreſſings. ----But while a gangrene is impending, that is, while the parts are in the higheſt ſtate of inflammation, what the benefit can be which is ſuppoſed or expected to proceed from ſcratching the ſurface of the ſkin with a lancet, I never could imagine; nor, though I have often ſeen

it practiſed, do I remember ever to have ſeen any real benefit from it. If the ſkin be ſtill ſound and of quick ſenſation, the ſcratching it in this ſuperficial manner is painful, and adds to the inflamed ſtate of it; if it be not ſound, but quite altered, ſuch ſuperficial inciſion can do no poſſible ſervice; both the ſanies and the impriſoned air are beneath the membrana adipoſa; and merely ſcratching the ſkin in the ſuperficial manner in which it is generally done, will not reach to, or diſcharge either.

From what has been ſaid, it will appear, that there are three points of time, or three ſtages of a bad compound fracture, in which amputation of the limb may be neceſſary and right, and theſe three points of time are ſo limited, that a good deal of the hazard or ſafety of the operation depends on the obſervance or non-obſervance of them.

The firſt is immediately after the accident, before inflammation has taken poſſeſſion of the parts. If this opportunity be neglected or not embraced, the conſequence is either a gangrene or a large ſuppuration, with formation and lodgment of matter. If the former of theſe be the caſe, the operation ought never to be thought of, till there is a perfect and abſolute ſeparation of the mortified parts. If the latter, no man can poſſibly propoſe the removal of a limb, until it be found by ſufficient trial, that there is no proſpect of obtaining a cure without; and that by not performing the operation, the patient's ſtrength and life will be exhauſted by the diſcharge. When this becomes the hazard, the ſooner amputation is performed the better. In the firſt inſtance, the operation ought to take place before inflammatory miſchief is incurred; in the ſecond, we are to wait for a kind of criſis of ſuch inflammation; in the third, the proportional ſtrength and ſtate of the patient, compared with the diſcharge and the ſtate of the fracture, muſt form our determination.

OF

DISLOCATIONS in general.

THE principle inculcated ſo frequently in ſome of the foregoing pages, concerning the extended or relaxed, that is, the reſiſtent or non-reſiſtent ſtate of the muſcles, as depending on the poſition of the limb, may be applied with equal truth and equal advantage to diſlocations, as to fractures. Neither of them can indeed be rightly underſtood or judiciouſly treated without ſuch conſideration. In both, a perfect knowledge of the diſpoſition, force, attachments and uſes of the muſcles, at leaſt thoſe of the limbs, are abſolutely and indiſpenſably neceſſary: and if the young ſtudents would be careful in attending to the plain and obvious parts of anatomy; if they would with their own hands diſſect the muſcles, tendons, blood-veſſels and nerves; if they would examine minutely the ſtructure, diſpoſitions and connexions of all the parts which form the various joints, with their ligaments, and attend to the effects which the actions of the muſcles and tendons connected

therewith

therewith muſt neceſſarily have on them, they would have much more preciſe and adequate ideas of luxations, than many of them have; they would have ideas of their own, not taken upon truſt from writers, who have for ages done little more than copy each other, and they would act with much more ſatisfaction to themſelves.

By what our forefathers have ſaid on the ſubject of luxations, and by the deſcriptions and figures which they have left us of the means they uſed, of what they call their organa and machinemata, it is plain that force was their object, and that whatever purpoſes were aimed at or executed by theſe inſtruments or machines, were aimed at and executed principally by violence.

Many, or moſt of them indeed, are much more calculated to pull a man's joints aſunder, than to ſet them to rights. I will not go ſo far as to ſay, that they are all equally bad or improper; but I will venture to affirm, that hardly any of them are ſo contrived as to execute the purpoſe for which they ſhould be uſed, in the manner moſt agreeable, or moſt adapted to the nature or mechaniſm of the parts on which they are to operate, or to accompliſh ſuch purpoſe in the moſt eaſy and moſt practicable manner, and conſequently, as I have already ſaid, they act by force principally.

Nor is that all; ſome of them labour under another defect, and that capable of producing great miſchief; which is, that the force or power of the inſtrument is not always determinable, as to degree, by the operator, and conſequently may do too little or too much, according to different circumſtances in the caſe, or more or leſs caution or raſhneſs in the ſurgeon.

I know very well that many of theſe are now laid aſide, and that ſome few have been ſo altered, as to become uſeful; but ſtill the ſame kind of principle, on which theſe inſtruments were originally founded and conſtructed, very generally prevails, and violence is uſed, to the great

great fatigue, pain, and inconvenience of the patient, in many caſes, in which dexterity, joined to a knowledge of the parts, would execute the ſame purpoſe with facility and eaſe.

In diſlocations, as in fractures, our great attention ought to be paid to the muſcles belonging to the part affected. Theſe are the moving powers, and by theſe the joints, as well as other moveable parts, are put into action: while the parts to be moved are in right order and diſpoſition, their actions will be regular and juſt, and generally determinable by the will of the agent, (at leaſt in what are called voluntary motions); but when the ſaid parts are diſturbed from that order and diſpoſition, the action or power of the muſcles does not therefore ceaſe, far from it, they ſtill continue to exert themſelves occaſionally; but inſtead of producing regular motions, at the will of the agent, they pull and diſtort the parts they are attached to, and which by being diſplaced cannot perform the functions for which they were deſigned.

From hence, and from hence principally, ariſe the trouble and difficulty which attend the reduction of luxated joints. The mere bones compoſing the articulations, or the mere connecting ligaments, would in general afford very little oppoſition; and the replacing the diſlocation would require very little trouble or force, was it not for the reſiſtance of the muſcles and tendons attached to and connected with them: for by examining the freſh joints of the human body, we ſhall find that they not only are all moved by muſcles and tendons, but alſo, that although what are called the ligaments of the joints do really connect and hold them together, in ſuch manner as could not well be executed without them, yet, in many inſtances they are, when ſtript of all connection, ſo very weak and lax, and ſo dilatable and diſtractile, that they do little more than connect the bones and retain the ſynovia; and that the ſtrength, as well as the motion of the joints, depends in

great

great meaſure on the muſcles and tendons connected with and paſſing over them; and this in thoſe articulations which are deſigned for the greateſt quantity, as well as the celerity of motion. Hence it muſt follow, that as the figure, mobility, action, and ſtrength of the principal joints, depend ſo much more on the muſcles and tendons in connection with them, than on their mere ligaments; that the former are the parts which require our firſt and greateſt regard, theſe being the parts which will neceſſarily oppoſe us in our attempts for reduction, and whoſe reſiſtance muſt be either eluded or overcome; terms of very different import, and which every practitioner ought to be well apprized of.

From the ſame examination is to be obtained a kind and degree of very uſeful information, which the ſkeleton cannot afford. I mean an acquaintance with the ligaments themſelves, both external and internal; the cartilages, both fixed and moveable; and the parts furniſhing what is called the ſynovia.

This, to thoſe who are perfectly acquainted with the ſubject, may ſeem too obvious to have needed mention; but no one who has not examined the joints can poſſibly have this kind of neceſſary knowledge; and I am convinced that there are many practitioners who have no idea of articulations, but what the aſſemblage of dry bones has furniſhed them, and which muſt be very inadequate.

I have neither leiſure nor inclination at preſent to enter into this matter minutely, or indeed as it deſerves; beſide which, I have, I fear, ſufficiently exerciſed my reader's patience already in the foregoing ſheets. I will therefore detain him no longer than while I mention a few leading principles relative to luxations in general, drawn from the ſtructure of the parts concerned, and which appear to me to be applicable, with very little if any variation, to every particular ſpecies.

1. Although

1. Although a joint may have been luxated by means of conſiderable violence, it does by no means follow, that the ſame degree of violence is neceſſary for its reduction.

2. When a joint has been luxated, at leaſt one of the bones of which it is compoſed is detained in that its unnatural ſituation, by the action of ſome of the muſcular parts in connection with it; which action, by the immobility of the joint, becomes, as it were, tonic, and is not under the direction of the will of the patient.

3. That the mere burſal ligaments of ſome of the joints, endued with great mobility, are weak, diſtractile, and conſtantly moiſtened; that for theſe reaſons they are capable of ſuffering conſiderable violence without being lacerated; but that they are alſo ſometimes moſt certainly torn.

4. That did the laceration of the ſaid ligaments happen much more frequently than I believe it does, yet it cannot be a matter of very great conſequence, as it neither totally prevents reduction, when timely and properly attempted, nor a conſequent cure.*

* In the accident of a diſlocated tibia, from a broken fibula, the ſtrong, inelaſtic, tendinous ligaments, which faſten the end of the former bone to the aſtragalus and os calcis, are frequently torn; and as theſe by proper care almoſt always do well and recover all their ſtrength; there is the greateſt reaſon to expect, that the more weak, diſtractile ones do the ſame. The only miſchief which ſeems moſt likely to follow from a laceration of the latter is, from an effuſion of the ſynovia; of which I think I have (in a bad habit) ſeen an inſtance in the joint of the ancle. That the laceration of the burſal ligament of the ſhoulder cannot be a frequent or general impediment to reduction appears to me, from my never having in more than twenty years care of an hoſpital, met with a ſingle inſtance of its impracticability, when attempted in time.

For it can hardly be ſuppoſed, that ſuch kind of accident ſhould never have fallen to my lot, or to the people who have acted under me.

But even if this could be ſuppoſed, I can alſo ſay, that I do not remember impoſſibility of reduction to have happened to any of the other gentlemen of the houſe, under the ſame circumſtances.

5. That ſuppoſing ſuch accident to be frequent, yet as it is impoſſible to know, with any kind of certainty, whether it has happened or not, or in what part of the ligament, it cannot be admitted as a rule for our conduct, nor ought ſuch mere conjecture to produce any deviation from what we ought to do, were there no ſuch ſuppoſition. Could we know with certainty when and where this had happened, very uſeful information might indeed be drawn from it.

6. That all the force uſed in reducing a luxated bone, be it more or leſs, be it by hands, towels, ligatures or machines, ought always to be applied to the other extremity of the ſaid bone, and as much as poſſible to that only.

In every joint capable of diſlocation, the ſame circumſtance which renders it liable to be diſplaced, is alſo a very conſiderable aſſiſtance in its reduction. I mean the dilatability or diſtractile power of the ligaments, their capacity of giving way when ſtretched or pulled at.

This is perhaps the ſtrongeſt argument which can be produced, why all the force made uſe of in reducing a diſlocated joint ſhould be applied to that bone only, and not to the next. By the yielding nature of the ligaments of the luxated joint, reduction is to be accompliſhed. The ligaments of the other articulation, which is not luxated are yielding alſo; and all the force which is applied to the bone below or adjoining, muſt neceſſarily be loſt in the articulation which is not luxated, and can be of little or no ſervice in that which is.

Let this principle be applied to the diſlocation of the joint of the ſhoulder, and it will ſhew us why the ambi, in which the whole arm is tied down, and ſubjected to the extending power of the ſaid inſtrument, is defective, and may be pernicious. Why inſtruments built on the ſame general principle, but in which the fore-arm is not faſtened down, but left at liberty and not ſubjected to the ligature, execute their purpoſe with a great deal leſs force. Why the vulgar but

frequently

frequently very ſucceſsful method of reducing this joint, by placing the operator's heel in the axilla of the ſupine patient, ſometimes fails, the ſurgeon not having proper aſſiſtance, and contenting himſelf with pulling at the patient's wriſt only. It will alſo ſhew us, why, in the caſe of a luxated os femoris at the joint of the hip, the ſtrength of five or ſix people divided between the joint of the knee and that of the ancle, ſhall be inſufficient, and that of four, nay three of the ſame aſſiſtants, ſhall in the ſame caſe prove ſufficient, by being all, and properly applied to the knee and femur only, as I have more than once ſeen.

Many other applications of this principle might be made, but theſe are ſufficient to thoſe who underſtand the principle itſelf and ſee its force.

7. That in the reduction of ſuch joints, as are compoſed of a round head, received into a ſocket, ſuch as thoſe of the ſhoulder and hip, the whole body ſhould be kept as ſteady as poſſible, for the ſame reaſon as in the foregoing.

8. That in order to make uſe of an extending force with all poſſible advantage, and to excite thereby the leaſt pain and inconvenience, it is neceſſary that all parts ſerving to the motion of the diſlocated joint, or in any degree connected with it, be put into ſuch a ſtate as to give the ſmalleſt poſſible degree of reſiſtance.

This I take to be the firſt and great principle by which a ſurgeon ought to regulate his conduct in reducing luxations. This will ſhew us why a knowledge of all the muſcular and tendinous parts, acting upon, or in connection with the articulations, is abſolutely neceſſary for him who would do his buſineſs ſcientifically, with ſatisfaction to himſelf or with eaſe to his patient. It will ſhew us, that the mere poſition of the limb below the luxated joint, is what muſt either relax or make tenſe the parts in connection with that joint, and conſequently

that poſture is more than half of the buſineſs. It will ſhew us, why ſometimes the luxated os humeri ſlips in, as it were, of its own accord, by merely changing the poſition of the arm, when very violent attempts, previous to this, have proved ſucceſsleſs. It will ſhew us why extending the arm in a ſtraight line horizontally, or ſo as to make a right angle with the body, muſt in ſome inſtances, render all moderate attempts fruitleſs. Why the method of attempting reduction by the heel in the axilla is ſo often ſucceſsful, notwithſtanding two very conſiderable diſadvantages under which it labours, viz. part of the force being loſt in the elbow, and the tenſe ſtate of one head of the biceps cubiti. Why the tying down the fore-arm in the common ambi is wrong, for the ſame reaſons. Why the fore-arm ſhould at all times (let the method of reduction be what it may) be bent, viz. becauſe of the reſiſtance of the long head of the biceps in an extended poſture. Why when the os humeri is luxated forward, or ſo that its head lies under the great pectoral muſcle, the carrying the extended arm backward, ſo as to put that muſcle on the ſtretch, renders the reduction very difficult, and why, on the contrary, the bringing the arm forward, ſo as to relax the ſaid muſcle, removes that difficulty, and renders reduction eaſy. Why the reduction of a luxated elbow ſhould always be attempted by bending the ſaid joint. Why, when the inner ancle is diſlocated in conſequence of a fracture of the fibula, it is extremely difficult at all times, and ſometimes impracticable, either to reduce or to keep reduced the ſaid joint, while the leg is in an extended poſture; and why a bent poſture of the leg enables us with eaſe to accompliſh both thoſe ends. Why in the caſe of diſlocation of the head of the os femoris, (be it in what manner it may) a ſtraight poſition of the leg and thigh will always increaſe the difficulty of reduction; and why that very diſtorted and bent diſpoſition, in which the patient will always place it for his own eaſe, is and muſt be

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the poſture moſt favourable for reduction; becauſe it is and muſt be that poſture in which the muſcles, moſt likely to make oppoſition, are moſt relaxed and rendered leaſt capable of reſiſtance.*

9. That in the reduction of ſuch joints as conſiſt of a round head, moving in an acetabulum or ſocket, no attempt ought to be made for replacing the ſaid head, until it has by extenſion been brought forth from the place where it is, and nearly to a level with the ſaid ſocket.

This will ſhew us another fault in the common ambi, and why that kind of ambi, which Mr. Freke called his commander, is a much better inſtrument than any of them, or indeed than all; becauſe it is a lever joined to an extenſor; and that capable of being uſed with the arm, in ſuch poſition as to require the leaſt extenſion, and to admit the moſt; beſide which it is graduated, and therefore perfectly under the dominion of the operator.

It will ſhew us, why the old method by the door or ladder, ſometimes produced a fracture of the neck of the ſcapula; as I have ſeen it do in our own time.

Why if a ſufficient degree of extenſion be not made, the towel over the ſurgeon's ſhoulder, and under the patient's axilla, muſt prove an impediment rather than an aſſiſtance, by thruſting the head of the humerus under the neck of the ſcapula, inſtead of directing it into its ſocket.

Why the bar or rolling-pin under the axilla produce the ſame effect.

Why

* In the attempts for reduction of a luxated hip, there is one circumſtance, which by being overlooked, or not attended to, has more than once rendered every effort vain.

It is uſual and indeed neceſſary to tie down and confine the patient on a bed or table, in order to keep his body firm and ſteady; one part of the bandage or ſtrapping by which he is confined is fixed in the groin, and paſſing over his belly, and under his buttock, is faſtened above or rather beyond his head to ſomething immoveable. If this bandage be placed (as I have ſeen it) in the groin on the ſide of the luxated bone, it will prove ſo far from being aſſiſtant, that it will neceſſarily fruſtrate every attempt.

Why the common method of bending the arm (that is, the os humeri) downward, before ſufficient extenſion has been made, prevents the very thing aimed at; by puſhing the head of the bone under the ſcapula, which the continuation of the extenſion for a few ſeconds only would have carried into its proper place.

I know it is ſaid, that mere extenſion only draws the head of the bone out from the axilla, in which it was lodged, but does not replace it in the acetabulum ſcapulæ. To which I will venture to anſwer, that when the head of the os humeri is drawn forth from the axilla, and brought to a level with the cup of the ſcapula, it muſt be a very great and very unneceſſary addition of extending force, that will or can keep it from going into it. All that the ſurgeon has to do, is to bring it to ſuch level; the muſcles attached to the bone will do the reſt for him, and that whether he will or not.

Indeed if all the rational means and methods for reducing a luxated ſhoulder be examined, they will be found to act upon this principle, however differently this matter may appear to thoſe who have not attended to it. Even the common ambi ſucceeds by means of the extenſion, which the carrying the arm down with it produces, and not by its lever. That part of the inſtrument, ſo far from helping, is often a conſiderable hindrance, and even ſometimes fruſtrates the operator's intention, by puſhing the head of the bone againſt the ſcapula, before it is ſufficiently drawn out from the axilla.

If it was neceſſary to add any thing in ſupport of this doctrine, I ſhould ſay, that the ſuppoſition of laceration of the burſal ligament, being a circumſtance frequently attending this luxation, and proving an impediment to reduction, is a ſtrong inducement to us to be always attentive to the making ſuch extenſion, it being much more likely that the head of the bone ſhould return back by the ſame rent in the ligament, when ſuch ligament is moderately ſtretched out, than when it may be ſuppoſed to lie wrinkled or in folds.

10. The

10. The laſt principle which I ſhall take the liberty to mention, and which I would inculcate very ſeriouſly is, that whatever kind or degree of force may be found neceſſary for the reduction of a luxated joint, that ſuch force be employed gradually; that the leſſer degree be always firſt tried, and that it be increaſed gradatim.

Whoever reflects on what is intended by extenſion, what the parts are which reſiſt, and how that reſiſtance may be beſt overcome, will want little argument to induce him to accede to this principle; the advantages deducible from attending to it, and the diſadvantages which may and do follow the neglect of it, are ſo obvious.

They who have not made the experiment will not believe to how great a degree a gradually increaſed extenſion may be carried without any injury to the parts extended; whereas great force, exerted haſtily, is productive of very terrible and very laſting miſchief.

I know that the vis percuſſionis, as it is called, has been recommended, as having been ſucceſsful in ſome difficult luxations; but I have ſeen ſuch bad conſequences from it, that I cannot help bearing my teſtimony againſt it. The extenſile and diſtractile quality of the membranes, muſcles and ligaments, enables them to bear the application of very great force to them, without hurt, if ſuch force be applied gradually, and proper time be allowed for the parts to give way in; but great force, ſuddenly applied, is capable of producing the moſt miſchievous conſequences; and that in many other parts of ſurgery, beſide what relates to luxations.

REMARKS

ON THE

CATARACT.

NOtwithſtanding the variety of operations and proceſſes which, for the relief or cure of this diſeaſe, are to be found in almoſt all the books of our forefathers, yet it is very certain that, until within theſe laſt fifty years, neither the ſtate, nature, nor ſeat of it, were truly known; at leaſt not to the practitioners of ſurgery.

Wild and various were the conjectures concerning it: it was by ſome ſaid to be a diſtemper of the vitreous humour; by others of the aqueous; by ſome it was thought to be a condenſation of earthy particles; by others a membranous film: it was ſaid by ſome to be ante-

rior, by others, poſterior, to the pupil; it was often confounded with the gutta ſerena, and ſometimes even with an opacity of the cornea.

Accident, one great ſource of many an uſeful diſcovery both in phyſic and ſurgery, firſt proved it to be a diſtemper of the corpus cryſtallinum; to be in general abſolutely confined to it, and to conſiſt of a greater or leſs degree of opacity: and now, as is uſual in all ſuch caſes, we are convinced, that all the attempts, and all the operations, which ever were made, or practiſed to any good purpoſe, either for its relief, or its cure, could be ſucceſsful only as they affected that body.

From the knowledge of its ſeat, and of one of the principal circumſtances of its nature, we have been enabled to direct our attempts more rationally, and to act with a greater degree of preciſion and ſatisfaction; but ſtill from all I have been able to collect, either from books or from practitioners, there are ſome material circumſtances relative to the diſeaſe, which are not rightly, at leaſt not generally underſtood; ſome remains of the old doctrine ſtill continue to influence both our opinion and practice; ſome things are taken for granted which are by no means true; and practical inferences are drawn from others, which are not admiſſible. Whether an attempt to ſet ſome of theſe in a clearer light, will or ought to be attended with any alteration in the treatment of the diſtemper, muſt be left to others to determine: I ſhall content myſelf with relating, as briefly as I can, ſome few particulars which appear to me to deſerve attention.

One general opinion among our anceſtors was, that every cataract had its ſeaſons; was at one time immature or unripe, at another mature or ripe; and that the term unripe, neceſſarily implied a ſoft, that of ripe, a hard, or firm ſtate of the cryſtalline.

The opinion was a neceſſary conſequence of the theory then moſt frequently embraced, and was therefore generally credited; and, as very often happens with regard to preconceived notions, it was thought to be confirmed by facts. This

This doctrine has, it is true, been contradicted by ſome of our beſt modern practitioners; but ſtill it not only remains the opinion of many, but has a very conſiderable ſhare in determining the preference ſuppoſed to be due to one method of operating over another.

The terms imply, and are generally underſtood to mean, that every cataract is at firſt ſoft, through its whole ſubſtance; and that by degrees, in more or leſs time, it becomes hard and firm, or at leaſt harder and firmer than the natural cryſtalline: which latter circumſtance is by no means true, either neceſſarily or even generally. I will not ſay that it never is: but I can venture to affirm, that it moſt frequently is not. Some of our remote anceſtors borrowed their ideas, on this ſubject, from the kernels of fruits, to which they have indeed compared the cataract: but the notions of ripe, and unripe, have remained with many who were aware of the exceeding abſurdity of the compariſon.

If this was a merely ſpeculative point, it would be a matter of very little importance; but as a practical inference is drawn from it, that the early, or ſuppoſed unripe ſtate is an improper one for an operation, and that therefore a patient ſhould wait for a later or ripe one, it becomes a matter of conſiderable conſequence to ſuch perſon whether he ſhall, or ſhall not continue blind all that very uncertain ſpace of time. Neither is this all, material as it may ſeem, for the ſame doctrine implies, that the firſt degree or appearance of obſcurity, however ſoft the cryſtalline may then be, will certainly be followed by an induration of it; or, in other words, that the cryſtalline is firſt rendered ſoft merely and only to become hard afterwards: that the ſame firſt, or ſoft, ſtate is not proper for an operation, becauſe it would neceſſarily render it unſucceſsful; and that an increaſed degree of opacity, and obſcurity, may, in general, be regarded as marks of increaſed firmneſs: not one of which is true.

The natural, ſound, tranſparent cryſtalline, is very far from being uniform in its conſiſtence through its whole ſubſtance: its external part is much ſofter, and more gelatinous, than its internal: which therefore, although equally tranſparent, may be ſaid to form a kind of nucleus, and is always of much firmer texture.* From this ſound and natural ſtate, it is capable of ſeveral morbid alterations: it is capable of being diſſolved, or of becoming fluid, without loſing any thing of its tranſparency: † it is capable of being diſſolved into an apparently uniform fluid of a gelatinous kind of conſiſtence, but which will be more or leſs opake through the whole; it ſometimes becomes opake while it undergoes a partial kind of diſſolution, which leaves, or renders the different parts of it, of very different degrees of conſiſtence; and it now and then, though very rarely, becomes opake through its whole ſubſtance, and yet preſerves its natural degree of firmneſs.‡

Whenever

* If this known difference of conſiſtence, between the external and internal parts of the cryſtalline, was duly attended to, it would ſolve many of the appearances in cataracts; which, for want of ſuch attention, are either not accounted for, or very abſurdly. Among other phænomena, it would account for the very different colour which the different parts of the ſame cataract frequently bear; and which has furniſhed the wildeſt conjectures.

† It has been ſuppoſed, by very good anatomiſts, that the human cryſtalline has ſometimes, between its ſurface and its capſula, a ſmall quantity of fine pellucid lymph; and conſequently that there is no immediate connection between that body and its inveſting membrane. In many beaſts, as well as fiſhes, this is known to be the caſe; but whether it be ſo in the human eye, is not very eaſy to be known during life; but that this is the caſe, ſometimes from diſtemper, I have no doubt: I mean, that the whole cryſtalline is diſſolved into a fluid, ſtill preſerving its tranſparency. This kind of alteration, as I take it, forms, what is by ſome called, one ſpecies of the gutta ſerena; by others, the black cataract.

‡ From this variety of alteration, which the cryſtalline is capable of undergoing, proceeds that variety of appearance which our anceſtors have called ſo many different kinds of cataracts.

Whenever the cryſtalline becomes ſofter than it ſhould be, or tends towards ſuch ſtate, it is certainly diſtempered, and unfit for perfect viſion, whether it be opake or not, or whatever its degree of opacity may be: but whoever ſuppoſes that ſuch ſoftened and opake cryſtalline will neceſſarily, or even frequently, acquire firmneſs, or become hard by time, is exceedingly miſtaken. Opacity, though now and then accompanied by what is called induration, is no proof of it, nor of any tendency towards it; ſo far from it, that ſome of the moſt diſſolved or fluid cataracts, and which have been ſo for the greateſt length of time, are found full as opake as the moſt firm ones.

Whoever has an opportunity of obſerving this diſtemper, and will embrace it, will find that cataracts, which have, in a length of time, gone through all thoſe alterations of colour, which are ſaid to indicate unripeneſs, and ripeneſs, are often as perfectly ſoft as they ever could have been; and, on the other hand, will ſometimes find them what is called firm or hard very ſoon after the firſt appearance of obſcurity. That is, to ſpeak more truly, as well as more properly, the former, having been at firſt diſſolved, have remained in the ſame ſtate of diſſolution; and the latter, having been at firſt only partially ſoftened, have been found in the ſame unequal ſtate, with a firm nucleus.*

When, therefore, I make uſe of the term induration, I do it in compliance with the common method of ſpeaking; and not becauſe I think that it conveys, by any means, an adequate idea of the real alteration

* For this there is no poſſibility of accounting rationally, but by having recourſe to the natural ſtate of the cryſtalline, with regard to the different conſiſtence of its different parts. This will account for the alterations to which it is liable from time, accident, or diſtemper; this will ſhow why there is no uniformly and univerſally hard cataract; why, in all of them, the ſofteſt part is always on the ſurface; why, even in the hardeſt, the central part is always the moſt firm; and why the external and internal parts of the ſame cataract, are ſo often ſo different from each other in colour.

teration made in the ſtate of the cryſtalline; far from it; it neither conveys an idea of the nature, nor of the extent of ſuch alteration: with regard to the former, the term induration can, with propriety, be uſed only in oppoſition to a perfect or general diſtempered diſſolution, by much the majority of what are called firm cataracts, being much leſs firm than the ſame cryſtalline was before ſuch alteration: and with regard to the latter circumſtance, the extent of the miſchief, it is ſubject to the greateſt degree of uncertainty; being ſeldom or never an induration of the whole body, but moſt frequently a firmiſh kind of nucleus, of greater or leſs ſize, contained within more or leſs of a gelatinous, or ſofter kind of ſubſtance: ſo that the nucleus is called firm only in oppoſition to what envelopes it.

In ſhort, if we would think and ſpeak of this matter as it really is (or as it appears to me to be) inſtead of uſing the terms ſoft and hard in oppoſition to each other, and as implying different effects either of time or of diſtemper on the cryſtalline, we ſhould ſay that diſſolution or ſoftning, in ſome degree, is by much the moſt common effect: That, except in ſome few inſtances, where that body retains its natural firmneſs, while it loſes its tranſparency, the moſt frequent conſequence is a ſoftening of its texture, either partial or total: and that ſeven times in nine, when the cryſtalline becomes opake, and tends towards forming a cataract, it is more or leſs ſoftned; ſometimes equally through its whole ſubſtance, ſometimes partially, having a greater or leſs portion left undiſſolved.

This undiſſolved part, which always makes what is called a hard cataract, may indeed be called firm in oppoſition to the ſofter, by which it is ſurrounded; but even this very part is hardly, if ever, ſo firm as the center of the natural and ſound cryſtalline.

I beg the reader's pardon for having been ſomewhat prolix, but the ſubject did not appear to me to have been properly attended to.

It

It would be exceedingly pleaſant, as well as advantageous, if we could, previous to an operation, know the true ſtate of an opake cryſtalline: it would enable a ſurgeon to determine his mode of operating with more preciſion, and to explain what his intention by ſuch method was: it would give ſatisfaction to himſelf as well as to ſtanders-by; and make that appear to be judicious and rational, which, under our preſent uncertainty, has often the appearance of being accidental, and done at random.

It is agreed by all, who have carefully conſidered this ſubject, and who are ingenuous enough to ſpeak the truth, that the mere colour of a cataract furniſhes no proof, to be by any means depended upon, relative to its conſiſtence; and that they which appear greyiſh, or bluiſh, or like whey, are ſometimes found to be firm and reſiſtent, while the more equally white ones, are often perfectly ſoft.

I do not mean to aſſert, but merely to propoſe, to the conſideration of ſuch as may have leiſure and opportunity, whether when the opake cryſtalline is quite diſſolved, ſo as to form a ſoft cataract, it is not, at the ſame time, ſomewhat enlarged; and whether when ſuch diſſolution does not take place, and what is called a hard cataract is formed, the cryſtalline is not, in ſome degree, leſſened or ſhrunk.

Among the circumſtances which have concurred to incline me to be of this opinion is this, that when the pupil has been obſerved to be always in a ſtate of dilatation, even when expoſed to a ſtrong light, and although capable of motion, yet never to contract in the uſual manner, I have moſt commonly found the cataract to have been ſoft; and, on the contrary, when the pupil has been capable of full and perfect contraction over the cataract, I think that it has moſt commonly proved firm; and this difference I have more than once obſerved in the different eyes of the ſame perſon. The greater degree of facility, with which the firm cataract quits its place, and paſſes thro' the pupil upon

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the diviſion of the cornea, does not leſſen the probability of this opinion. I could alſo wiſh that they who have opportunity would inquire, whether the cataracts which have been found perfectly ſoft, have not, in general, become gradually more and more opake by very ſlow degrees; and, in a length of time, the patient feeling little or no pain; and whether the firm ones do not, in general, become haſtily opake; and are not preceded, or accompanied by ſevere, and deeply-ſeated pain in the head, particularly in the hinder part of it.

What has hitherto been ſaid, as it principally regards the theory of the diſtemper, may perhaps be thought to be of little importance; but when the influence which theſe opinions may produce, and indeed have produced on practice, is conſidered, it will be found to be matter of ſome conſequence: while they are confined to a ſurgeon's imagination only, they are not of much conſideration; but when they are to regulate his judgment, and direct his hand, they become rather ſerious.

Since the operation of extracting the cataract, inſtead of depreſſing it, has been introduced into practice, and made a kind of faſhion, it has been the humour to exaggerate all the objections to which the latter has been ſaid to be liable; and that in ſuch a manner, that they who have not had frequent opportunities of ſeeing buſineſs of this kind, fall, without reflection, into the prevailing opinion; ſeem to wonder, that the operation of couching ſhould ever have had any ſucceſs at all; and at the ſame time are, from the accounts given, inclined to believe, that the extraction is always ſafe, eaſy, and ſucceſsful.

The objections, which are made againſt the operation of couching, at leaſt thoſe which have any ſemblance of truth, or force, are reducible to four:

The firſt is, that if the cataract be perfectly ſoft, the operation will not be ſucceſsful, from the impoſſibility of accompliſhing the propoſed end of it.

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The ſecond is, that if it be of the mixed kind, partly ſoft, and partly hard, it will alſo moſt probably fail of ſucceſs, not only from the impracticability of depreſſing the ſofter parts, but alſo becauſe the more firm ones will either elude the point of the needle, and remaining in the poſterior chamber, ſtill form a cataract; or getting through the pupil into the anterior chamber, will there bring on pain and inflammation, and induce a neceſſity of dividing the cornea for their diſcharge.

The third is, that if the cataract be of the firm, ſolid kind, and therefore capable of being depreſſed, yet, in whatever part of the eye it ſhall happen to be placed, it will there remain undiſſolved, ſolid, opake; and although removed from the pupil, yet prove ſome hindrance to perfect viſion.

The fourth objection is, that however ſucceſsfully the depreſſion may have been accompliſhed, yet that the operation will neceſſarily occaſion ſuch violation, and derangement of the internal parts of the eye, as muſt cauſe very conſiderable miſchief.

Theſe objections, if they have any real weight, are of equal force in every ſpecies of cataract; and therefore are the more worthy our attention: ſince, if they be founded on truth, they render the operation unfit for practice; but if they be not, miſrepreſentation and faſhion ſhould never induce us to lay aſide any means which have been, and ſtill may be, beneficial to mankind.

The firſt, and ſecond, I can from frequently-repeated experience, affirm not to be true. I mean that the operation of couching will not neceſſarily, or even generally, be unſucceſsful, merely becauſe the cataract ſhall happen to be either totally or partially ſoft: on the contrary, although theſe ſtates will prevent perfect depreſſion, yet, by the judicious uſe of the needle, a recovery of ſight, the true end and aim of the operation, will be as certainly and as perfectly obtained, as

it could have been either by depreſſion, or by extraction, in the ſame ſubject; and that generally without any of the many and great inconveniences which moſt frequently attend the latter operation.

The third objection is ſpecious, and therefore very generally credited. That it never happens I will not take upon me to ſay, becauſe ſo many have aſſerted it; ſome of whom, one would hope, had ſome kind of authority for what they have ſo poſitively affirmed. But, on the other hand, when we conſider how few there are who have written from their own examination and experience; and how many, who have taken for granted, and copied, what others have ſaid before them; our faith will not be quite implicit. Certain I am, from repeated experience and examination, that this opinion has not that foundation in truth which it is generally ſuppoſed to have; and that it has been embraced and propagated haſtily, and without ſufficient inquiry and experiment.

As this ſuppoſed indiſſolubility of the opake cryſtalline is not only ſo principal an objection to the operation of couching, even when it is capable of being perfectly depreſſed, as to be ſaid to overbalance all the evils, many and great as they are, which frequently attend the extraction; but is alſo ſuppoſed to be the cauſe of the failure of ſucceſs, when the depreſſion of the ſofter kinds of cataracts is attempted; it may be worth a little ſerious examination.

I ſhould be ſorry to have it thought, that I had any predilection or partiality to one method of operating more than to another; or that I would wiſh to give to either any preference, but what its ſuperior excellence, or utility might juſtly demand; but, on the other hand, I cannot poſſibly pay regard to any authority, however otherwiſe reſpectable, when it contradicts what I know to be fact. Both operations are equally practicable by any man who has a hand and an eye, and is capable of performing either; but it has of late years been ſo much

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the humour to depreciate the one, and to extol the other, that it becomes neceſſary to examine the ſuppoſed merits of one, and demerits of the other; and to ſee whether they be drawn from premiſſes which are true: if one is to be deemed univerſally preferable to the other, let the circumſtances, on which ſuch preference is to be founded, be drawn from fact, and not from fiction; let them be fairly and faithfully inquired into, and let ſuch inquiry determine.

In order to aſſiſt in one part of this inquiry, I beg leave to lay before the reader, a few experiments and obſervations, which I have made; or I believe I ſhould more properly ſay, have repeated; they having been often made and obſerved, but not properly inforced or applied.*

When the opake cryſtalline is in a ſtate of diſſolution, or the cataract is what is called perfectly ſoft, if the capſula of it be freely wounded by the couching-needle, the contents will immediately iſſue forth, and mixing with the aqueous humour, will render it more or leſs turbid: ſometimes ſo much as to conceal the point of the needle, and the iris of the eye from the operator.

This is a circumſtance which has been obſerved by moſt operators, and has been mentioned by many writers; but it has always been regarded and mentioned as an unlucky one, and as being, in ſome degree, preventative of ſucceſs; which is ſo far from being the fact, that as far as relates to this circumſtance merely, all the benefit which can be derived from the moſt ſucceſsful depreſſion, or extraction, moſt frequently attends it; as I have often and often ſeen.

The aqueous humour, however turbid it may become, will, in a very ſhort ſpace of time, be again perfectly clear; and if no diſorder

* When I ſay experiments and obſervations which I have made and repeated, I would wiſh the reader to underſtand, that I have made them carefully, for the purpoſe; and ſo repeatedly, as to be ſatisfied of their *general* truth.

of the capſula of the cryſtalline, previous, or conſequential, prevents, the rays of light * will paſs without obſtruction through the pupil, and the patient will be reſtored to as perfect viſion as could have followed

* The capſula, or inveſting membrane of the cryſtalline, has very often an unſuſpected ſhare in the apparent opacity of that body; and is thereby the cauſe of diſappointments and inconveniences during ſome operations, and after others. This is a circumſtance which, undoubtedly, has been mentioned; but has not been, by any means, ſufficiently attended to. The capſula is capable of becoming white and opake, while its contents ſhall be clear and tranſparent; it becomes ſo ſometimes by being wounded by the couching-needle, uſed either for the depreſſion of a firm cataract, or for the letting out a ſoft one; and it will not infrequently be found ſo, after the operation of extraction, when no inſtrument has touched it.

Whenever this happens, it is an unpleaſant circumſtance, but ſtill more ſo, if it continues for any length of time: I have ſeen it diſappear in a week; I have ſeen it continue two, three, or four, and at laſt totally diſappear; and I have ſeen it continue ſo long as to require the re-application of the inſtrument. When it appears after the depreſſion of a firm cryſtalline, or after an unſucceſsful attempt to depreſs one which has proved not firm enough, it may eaſily be, and generally is, miſtaken for a portion of the cataract riſen again; but from which an attentive obſerver will always be able to diſtinguiſh it: but when ſuch opacity follows what is called a ſucceſsful extraction, in which the cornea only was divided; the capſula not touched by the inſtrument, and the cataract came away intire thro' the pupil, the caſe is ſelf-evident.

This may truly and properly be called, as it has been by Monſieur Houin, Haller, and others, a membranous cataract, as it conſiſts merely of the membranous capſula of the cryſtalline.

Writers of credit have mentioned, that a cataract may be formed almoſt inſtantaneouſly, by external violence. There is no doubt of the fact; I have ſeen it four different times.

Whether this be not an affection of the capſula merely, I much doubt; or rather am much inclined to ſuſpect, that it moſt frequently is. In three of the four, which have fallen under my obſervation, the opacity has gradually diſappeared after the inflammation, in conſequence of the blow, had gone off; and the eyes were left as clear as ever. A conſequence which, I think, may be accounted for, by ſuppoſing the opacity in the capſula only; but cannot, if we ſuppoſe it to be in the corpus cryſtallinum itſelf.

lowed the moſt ſucceſsful operation of either, or of any kind in the ſame ſubject, and under the ſame circumſtances.

When the cataract is of the mixed kind, partly ſoft, and partly hard, the immediate effects of the needle are ſomewhat different; the ſoft part of the cataract, being leſs in quantity, as well as generally leſs ſoft, the aqueous humour is leſs turbid; and the firm part, or parts of the cryſtalline will be very viſible. In this ſtate, theſe firmer parts will very frequently elude the attempts made, by the needle, to depreſs them; and will therefore remain in the poſterior chamber. This is alſo reckoned among the unfortunate circumſtances; but although to an operator not aware of, nor acquainted with the conſequence, it may have all the appearance of being ſo, yet it really is not; the true end and aim of the operation not being thereby neceſſarily fruſtrated. In this caſe, if the needle has been ſo uſed as to have wounded the capſula very ſlightly, it will ſometimes happen, that the firm part of the cryſtalline will remain in its nidus, and ſtill form a cataract; which may poſſibly require a future or re-application of the inſtrument. This is the worſt that can happen, and happens indeed very ſeldom; for if the capſula be properly wounded, ſo that the aqueous humour be freely let in, the firm part or parts, though very viſible at firſt, and preventing the paſſage of light through the pupil, will in due time, in ſome longer, in others ſhorter, gradually diſſolve, and at laſt totally diſappear; leaving the eye as fair, as clear, and as fit for viſion, as any the moſt ſucceſsful operation could have rendered it; of which I have ſeen and exhibited many proofs.*

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* The ſpace of time, which the accompliſhment of ſuch diſſolution will require, is very uncertain: I have ſeen the eye perfectly fair, and clear, within a week after the operation; and I have ſeen it require two months for the diſſolution of all the opake parts.

This

In order to render the fact ſtill more clear, I have ſometimes, when I have found the cataract to be of the mixed kind, not attempted depreſſion: but have contented myſelf with a free laceration of the capſula; and having turned the needle round and round between my finger and thumb, within the body of the cryſtalline, have left all the parts in their natural ſituation: in which caſes I have hardly ever known them fail of diſſolving ſo entirely, as not to leave the ſmalleſt veſtige of a cataract.† In a few inſtances, where I have had fair opportunity,

This has been obſerved by many, even before the nature and ſeat of a cataract were truly known; among the reſt, by Read, who, ſpeaking of one of his own operations, ſays:

"At the end of nine days I viſited my patient, and found both her and her friends "highly diſcontented; ſo that I met with nothing but invectives, &c.

"Within a fortnight after, when art and nature having performed their mutual ope-"rations, and all the cloudy vapours and rags of the cataract were conſumed and diſ-"perſed, her eyes grew clear, and her ſight became perfect, &c."

"I would have every patient, though after a cataract be couched, and nine or ten days "expired, he ſee little, or nothing at all, or that he cannot endure the light for a month or "two, or even for a quarter of a year, as I have known many, not to be diſcouraged; for "their ſight may, notwithſtanding, become well and perfect, and continue ſo ever after. "On the other hand, ſome come to good and perfect ſight within a fortnight or three "weeks." Sir W. Read, p. 7.

† The operation of extraction, though ſaid in general to remove the cryſtalline intire, and calculated for ſuch purpoſe, does not always do ſo; but when the cataract is of the mixed kind, does not infrequently leave ſome of the firmer part behind, which one of the warmeſt patrons of the operation allows does diſſolve and diſappear. "Extra-"hendum ſtatim poſt operationem eſt quicquid remanet opaci ope Cochlearis Davielis. "Hoc quidem facile, fit aliquando, aliquando vero et imprimis ubi membrana cryſtallina "non ſatis lacerata cochlear in ipſam capſulam lentis, ubi hæret illud opacum corpuſ-"culum non admittit, tantis difficultatibus circumfuſum eſt, ut quicquid etiam moliaris "extrahere illud non poſſis, et ne oculum nimis irrites, deſiſtere ab opere, et relinquere "illud in oculo cogaris.

"Neque tamen tunc etiam ſpe optimi ſucceſſus deſtituimur. Sœpe enim obſervavi, "opacum illud remanens, ſive ſit mucus, ſive fruſtulum lentis cryſtallinæ, ſenſim, et "ſponte,

portunity, I have puſhed the firm part through the pupil into the anterior chamber, where it has always gradually, and perfectly diſſolved, and diſappeared, not producing pain or trouble, while ſuch diſſolution was accompliſhing.*

What I have advanced not being matter of opinion, but matter of fact capable of being inquired into, and proved by any who will take the trouble of ſo doing, I do not deſire any man to give credit to it upon my mere aſſertion. But if, upon repeated trial and inquiry, it ſhould be found to be as generally and as frequently true by others, as it has been by me, may it not fairly be inferred, that whatever other reaſons there may be for preferring the operation of extraction to that of depreſſion, or the uſe of the knife to that of the needle, yet thoſe drawn from the ſuppoſed indiſſolubility of the cryſtalline, are by no means concluſive; on the contrary, are very inconcluſive. But this is by no means all; for if what I alledged be true, ſome other conſequences, not a little intereſting to the afflicted, will neceſſarily follow.

Firſt, if the ſoft cataract will, when its capſula is properly wounded, mix with the aqueous humour, and undergo ſuch a perfect diſſolution, and

" ſponte, citius vel tardius, penitus diſparuiſſe. An reſorbetur mucus lacteus, an fru-
" lentis cryſtallinæ liqueſcant ſenſim, et reſorbentur, an in fundum oculi ſenſim ſe præ-
" cipitant, dubium eſt. Utrumque tamen fieri credo. Quoties lactea materia poſt de-
" preſſam cataractam totum humorem aqueum opacitate ſuâ et albedine inficiens ſenſim
" penitus evanuit? Quoties pus in oculo hærens vel ſanguis inſigni quantitate in illum
" effuſus, ſenſim reſorptus evanuit? Quoties fruſtula lentis, cryſtallinæ, poſt depreſſi-
" onem cataractæ, in pupillâ relicta! &c. immo liqueſcere aliquando et reſorberi hæc
" fruſtula me ipſum experientia docuit, &c. RICHTER de Cataractæ Extract.

* I ſhould be ſorry to have it inferred from hence, that I would recommend the paſſing the opake cryſtalline through the pupil; far from it; I think it wrong, as it is apt to produce one of the moſt frequent inconveniences attending the operation of extraction, an irregularity of the pupil. I only meant to prove the fact of diſſolution of the cataract in ſuch ſituation; and that it will not cauſe that pain and trouble which it is ſo poſitively ſaid to do.

and abſorption, as to leave the eye fair, clear, and fit for viſion; and which I have ſo often proved, that I have not the ſmalleſt doubt about it; it will then follow, that the ſoftneſs of a cataract is ſo far from being an unlucky circumſtance, that it is rather a fortunate one; as it enables the patient to receive more early aſſiſtance; and that from an operation attended with leſs pain, and a leſs violation of parts, than a firmer one would neceſſarily require.

Secondly, When the cataract is of the mixed kind, and which therefore frequently foils all the attempts toward depreſſion, the firmer parts may very ſafely be left for diſſolution; and viſion be thereby reſtored.

And, Thirdly, when the cataract ſhall happen to be of the firmer kind, and during an unſucceſsful attempt to depreſs, get through the pupil behind the cornea, diſappointment will be ſo far from being the conſequence, that if no other injury has been done to the parts within, than what ſuch attempt neceſſarily required, the diſplaced cryſtalline will gradually diſſolve and diſappear; and the patient will ſee as well as any operation could have enabled him to have done.

I may perhaps be told, that what I have hitherto alledged only tends to prove, that both the ſoft and mixed cataract, when mixed with the aqueous humour by the laceration of the capſula, will diſſolve, but that the firm one will not, and therefore muſt remain, wherever placed, a ſolid opake body.

To which I anſwer, in the firſt place, that if what has been ſaid relative to the ſoft, and to the mixed cataract be true, I cannot help thinking it to be very advantageous. In the ſecond place, that the opinion concerning the indiſſolubility of the diſplaced cryſtalline has, I think, been taken up, and propagated, without proper authority from inquiry and experiment, fairly and deliberately made, and ſtands merely on a few accidental obſervations, which are by no means ſatisfactory.

factory. And, in the third place, that, as far as my own inquiry and obſervation go, I am ſatisfied, that it does diſſolve wherever placed, provided it be perfectly freed from its attachment in its natural nidus.*

Both men and books talk of firm, hard, intire, uniform cataracts, as if they were as much ſo as what are found in the eye of a boiled fiſh. Whence they borrow this idea, I know not, unleſs it be from boiled fiſh; certain I am that it is not from nature.

Let any man examine the moſt firm, opake cryſtalline, taken from the eye of a living perſon, and which, from its firmneſs, paſſed out through the pupil and the divided cornea, with the greateſt facility; he will generally find it to be in figure, ſize, and conſiſtence, exceedingly unlike either to the natural and ſound cryſtalline, or to one rendered opake by heat; and he will alſo find, that ſuch alteration of ſhape and ſize is owing to a partial diſſolution of its ſurface, particularly its anterior one; in ſhort, if he will examine it carefully, and without prejudice, he will ſee, that what he calls an intire, firm cataract, is moſt frequently little more than the nucleus of an opake cryſtalline.

If a man might be allowed to argue in a caſe of this kind, à priori, he might very reaſonably aſk, why ſhould the corpus cryſtallinum, which, although opake, is, while in its natural ſituation, and enveloped in its proper capſula, ſo prone to diſſolve, as we muſt know that

* While I was preparing theſe ſheets for the preſs, an old man was taken into St. Bartholomew's, who had a cataract in one eye, and had, by ſome accident, loſt the ſight of the other. I couched him; the cataract was as firm as I had ever felt any, and went down as eaſily, as immediately, and as intirely as poſſible. Three days after the operation, he was ſeized with ſo bad a ſmall-pox, that he died on the eleventh, and the next day I took his eye home and examined it. The cataract lay juſt below and behind the uvea, toward the external canthus. It was become ſmall, irregular, and manifeſtly in a ſtate of diſſolution.

it is, be ſuppoſed to be as prone to induration, immediately upon being removed from its place.

The moſt ſtrenuous advocates, for extraction, cannot help allowing, that a portion or portions of a firm cataract, which they have been obliged to leave behind in the operation, diſſolve and diſappear in due time: it is, indeed, a fact not to be contradicted: but the ſame people ſay, that the intire cataract will not. What idea they, who argue thus, have of an intire cataract, I know not; they may poſſibly conceive it to be depreſſed, ſtill remaining enveloped in a firm capſula, and therefore to remain indiſſoluble: but if they would reflect on the extreme fineneſs of the capſular membrane; on the neceſſary action of the couching-needle, when applied to it; and on the different conſiſtence of the different parts of every, even the moſt opake and firm cataract, they muſt ſee that it is a portion only of any cataract, however firm, which can in general be depreſſed.

One of the arguments, made uſe of by ſome of the late writers, in favour of extraction, is, that as the cryſtalline *muſt* be *deſtroyed*, it had better be removed. Now how can it be ſaid to be deſtroyed, if it be only diſplaced, and remain indiſſoluble? Let them take which ſide of this argument they pleaſe, they muſt be wrong: for, if the diſeaſed cryſtalline remain, though depreſſed, a ſolid body within the eye, how can it be ſaid to be deſtroyed? and, on the other hand, if it be deſtroyed in the operation of couching, it muſt be by diſſolution; and therefore cannot remain.

The laſt objection to the operation of couching is, that it muſt neceſſarily derange, and violate, the internal parts of the eye, particularly the vitreous humour.

If what I have ſaid on the ſubject of the perfectly ſoft cataract, as well as on that which is partially ſo, be true, the greateſt part, if not the whole of this objection, will ceaſe, with regard to theſe two: and

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it will be principally, if not totally, confined to that which is called firm and hard, and which, by its reſiſtance to the inſtrument, will admit of being placed in the inferior part of the eye.

In the performance of this operation, the needle may certainly be ſo uſed, as to do conſiderable miſchief; but then it muſt be from the unſkilfulneſs or aukwardneſs of the operator; and which may be the caſe of every operation in ſurgery. But is an operation juſtly chargeable with ills, deducible merely from its having been ill executed? I hope not.

I am very ſenſible, that much miſchief has been done by attempts to couch; but, in the firſt place, they have almoſt always been the conſequence of want of judgment, or want of dexterity, in the operator; and, in the next place, even under the moſt exaggerated repreſentations, they are by no means equal to what has frequently been the conſequence of attempts to extract.

It may poſſibly be ſuppoſed, that I have conceived a prejudice againſt the operation of extraction. Of this I am not conſcious. I have ſought and embraced every opportunity which a publick hoſpital, and many years practice, have afforded me of operating in both ways; and of comparing the conſequences. I have ſeen many of the patients of others, not only of the gentlemen of the profeſſion, but of moſt of the itinerant operators; and am thereby convinced, that the greateſt part of the objections to the operation of couching are invalid; have not been the reſult of unprejudiced experience, or a candid regard for truth; that only the fair and proſperous ſide of the queſtion, regarding the operation of extraction, has been induſtriouſly exhibited, while its manifold failures and ill-conſequences have been as induſtriouſly concealed; and that upon a fair detail and compariſon of all the advantages, and diſadvantages, conveniences, and inconveniences attending each, the preference will be found juſtly due to the needle.

Inconveniences and disappointments they are both too liable to: I heartily wish they were not: but, from the most cool and candid attention to fact, I am convinced, that the former are much greater, and the latter much more frequent, in the operation of extraction, than in that of depression, executed with the same degree of judgment.

SOME

SOME FEW

REMARKS

ON THE

POLYPUS

OF THE

NOSE.

IN theſe, as in the preceding remarks on the cataract, I do not mean to enter into a circumſtantial hiſtory of the diſeaſe, but merely to offer a few practical obſervations on ſuch parts of the doctrine concerning it, as appear to me to have been either inadvertently or erroneouſly delivered.

The polypus is a complaint which is always troubleſome, frequently painful, and ſometimes hazardous; the firſt of theſe is, the neceſſary

neceſſary conſequence of the ſituation of the diſtemper; the ſecond ariſes from its peculiar nature in the individual; and the laſt, ſometimes from its particular nature, and ſometimes from the manner in which it may have been treated.

Writers tell us, and very truly, that it is a diſeaſe of the membrana pituitaria narium; that it has different ſeats, origins, and attachments; that it ſprings from the ethmoid bone, from the oſſa ſpongioſa, from the ſeptum narium, and even from the antra maxillaria: that it is hard or ſoft, pale or deep red, or ſometimes purple; that it is equal in its ſurface or unequal, large or ſmall, moveable or fixed, ſingle or multiform, painful or indolent; that it makes its appearance forward in the noſtrils, or backwards in the fauces behind the uvula; and that it may be ſtrumous, venereal, or cancerous. When they have given us theſe general, and merely definitive deſcriptions, they immediately proceed to the chirurgic treatment, or method of cure; which, they tell us, is either by extraction, or the uſe of eſcharotics, to which ſome have added ligature: they then give a general deſcription of the manner of uſing the forceps, of applying eſcharotics, or of paſſing the ſtring round it; and having provided ſtyptics for the ſuppreſſion of hæmorrhage, they leave every thing elſe to the reader's imagination, and to the practitioner's choice and judgment.

From theſe accounts, thoſe who have not had much opportunity of ſeeing for themſelves, and who are thereby under a ſort of neceſſity of forming their opinions, and regulating their practice by books, are induced to believe that, except in ſome few particular inſtances, where the diſtemper is palpably cancerous, that all others are equally objects of chirurgic treatment; and therefore, that if, in the firſt inſtance, they can lay hold of the polypus with the forceps, and in the ſecond, can

can provide againſt the hæmorrhage, which they have heard ſo much of, they ſhall have nothing elſe to do or to fear.

To me I muſt acknowledge, the matter appears very differently. I cannot help thinking, that there are many polypi, which, although they are neither ſcirrhous nor cancerous, are very unfit for any chirurgic treatment whatever; and that from ſeveral circumſtances: which circumſtances may act in different manners, though equally prohibitory: they may forbid an attempt merely from the impoſſibility of its being ſucceſsful; or they may forbid it, becauſe it is more likely to do harm than good; more likely to exaſperate the diſeaſe than cure it; to increaſe the misfortune, than to leſſen it.

The diſtinctive marks of the diſtemper, as laid down by writers, are, in general, juſt and true, but they only teach a young practitioner to know the diſeaſe when he may ſee it; they give him no warning of the miſchief he may incur by attacking it unguardedly; nor inform him of a very ſerious truth, viz. that this is a ſort of caſe, in which, when real miſchief has been done, it is ſometimes without remedy.

As far as my experience and obſervation go, the polypi, which begin with, or are preceded by, conſiderable or frequent pain in the forehead and upper part of the noſe, and which, as ſoon as they can be ſeen, are either highly red, or of a dark purple colour; they, which from the time of their being firſt noticed, have never been obſerved to be ſometimes bigger, ſometimes leſs, but have conſtantly rather increaſed; they in which the common actions of coughing, ſneezing, and blowing the noſe, give pain, or produce a very diſagreeable ſenſation in the noſtril and forehead; they which, when within reach, are painful to the touch, or which, upon being ſlightly touched, are apt to bleed; they which ſeem to be fixed and not moveable by the action of blowing the noſe, or of deriving the air through the affected

noſtril

noſtril only (where the polypus is only on one ſide); they which are incompreſſibly hard, and which, when preſſed, occaſion pain in the corner of the eye, and in the forehead, and which, if they ſhed any thing, ſhed blood; they which, by adheſion, occupy a very conſiderable ſpace, and ſeem to conſiſt of a thickening, or of an enlargement of all the membrane covering the ſeptum narium; they which ſometimes ſhed an ichorous, offenſive, diſcoloured diſcharge; and they round whoſe lower part, within the noſe, a probe cannot eaſily and freely be paſſed, and that to ſome height, ought not to be attempted, at leaſt by the forceps; nor indeed by any other means with which I have the good fortune to be acquainted; and this for reaſons obviouſly deducible from the nature and circumſtances of the polypus. On the one hand, the very large extent, and quantity of adheſion will render extirpation impracticable, even if the diſeaſe could be comprehended within the forceps, which it very frequently cannot; and, on the other, the malign nature of the diſtemper may render all partial removal, all unſucceſsful attacks on it, and indeed any degree of irritation, productive of the moſt diſagreeable conſequences.

But the polypi which are of a paliſh or greyiſh light brown colour; or look like a membrane juſt going to be ſloughy; they which are ſeldom or never painful, nor become ſo upon being preſſed; they which have appeared to be, at one time larger, at another leſs, as the air has happened to be moiſt or dry; they which aſcend and deſcend freely by the action of reſpiration through the noſe; they which the patient can make to deſcend by ſtopping the noſtril which is free, or even moſt free, and then deriving the air through that which the polypus poſſeſſes; they which when preſſed give no pain, eaſily yield to ſuch preſſure, become flat thereby, and diſtil a clear lymph; and they, round whoſe lower and viſible part a probe can eaſily, and that to ſome height, be paſſed, are fair and fit for extraction; the polypus, in theſe

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circumſtances, frequently coming away intire; or if it does not, yet it is removeable without pain, hæmorrhage, or hazard of any kind; the ſecond of which circumſtances I can with ſtrict truth affirm, I never yet met with when the diſeaſe was at all fit for the operation.*

Of the benign kind of polypus, fit for extraction, there are two ſorts, whoſe principal difference from each other conſiſts in their different origin or attachment: that which is moſt freely moveable within the noſtril, upon forcible reſpiration, which has been found to be moſt liable to change of ſize, at different times and ſeaſons, that which has increaſed the moſt in the ſame ſpace of time; that which ſeems moſt limpid, and moſt freely yields lymph upon preſſure, has its origin moſt commonly by a ſtalk or kind of peduncle, which is very ſmall, compared to the ſize of the polypus; while that, which although plainly moveable, is ſtill conſiderably leſs ſo than the other, which has been leſs liable to alteration from air and ſeaſons, and has been rather ſlow in arriving at a very troubleſome ſize, is moſt frequently an elongation of the membrane covering one of the oſſa ſpongioſa: they are both capable of being extracted, and that with no kind of hazard, with very little pain, and hardly any hæmorrhage at all; but

* They, who are affected with this ſort of polypus, generally complain, and that for a conſiderable time before the polypus becomes viſible, that they are perpetually catching cold, more eſpecially in moiſt or wet weather; though they ſeldom have any other ſymptoms of ſuch colds than the ſtoppage in and diſcharge from the noſe; they alſo always complain, that theſe colds always deprive them of the ſenſe of ſmelling. In moiſt weather, or in a ſudden change from dry to wet, they are alſo ſubject to frequent fits of ſneezing; and when the relaxed membrane is moſt affected, to very conſiderable diſcharge of thin mucus from the affected noſtril. Nor do I remember ever to have ſeen a polypus of this kind, which was not immediately ſubject to a change, upon the ſudden alteration of the atmoſphere, from dry to moiſt; that is, they always become longer, fall down lower, and look fuller and paler, and generally deprive the patient of all power of ſmelling.

the former requires the leaſt force, and moſt frequently comes away intire; while the latter often breaks, comes away piece-meal, and ſtands in need of the repeated uſe of the forceps.

From the preceding obſervations a few practical inferences may be drawn, ſuch as the following:

Firſt, That the polypi, under the firſt deſcription, very rarely, if ever, admit an attempt toward extraction, and that not merely from the improbability of its being attended with ſucceſs, but becauſe ſuch attempt may be the cauſe of very diſagreeable conſequences.

Second, That in thoſe which do admit an operation, or the uſe of the forceps, the degree of ſucceſs will depend principally upon two circumſtances, viz. the benignity of the diſeaſe, and the degree and quantity of attachment; for although the nature of the complaint may be perfectly benign, yet it may happen, that a cure may not be attainable, and that merely from the degree and kind of attachment.

And,

Third, That the hæmorrhage ſo much talked of, ſo ſollicitouſly guarded againſt by writers, and ſo much dreaded by young practitioners, will not often, if ever, be met with, in ſuch caſes as fairly and properly admit the operation.

The polypus is a diſeaſe which, of all others, is ſaid to be moſt difficult totally and perfectly to eradicate, and moſt liable to reproduction, this is, in ſome degree, true. It is difficult, in many inſtances, to extirpate it totally, and it does often grow again, more eſpecially that ſort which ſprings from the oſſa ſpongioſa; but yet, that is not ſo often the caſe as it is ſuppoſed to be. It not infrequently happens, that there are, at the ſame time, two, three, or more different polypi, each of which is perfectly diſtinct from the others, and has a ſeparable diſtinct attachment. When this is the caſe, the loweſt or moſt anterior, having the open noſtril before it, eaſily makes its way down, uncompreſſed,

compreſſed, while the other, or others, are not only kept up, and out of ſight, but are alſo conſiderably compreſſed.

When the one, which was within ſight and reach, has been removed, the next falls downward, and ſoon becomes viſible; if it was large and lax, and merely kept up by what lay before it, it is often to be ſeen immediately; but if it was ſmall it may be out of ſight, and can only be ſuſpected by the paſſage of air through the noſtril not being free, although the polypus, which was removed, came away perfect and intire; and when it does appear, it paſſes for a reproduction from the old ſtem, though it is really another and perfectly diſtinct polypus, of which the intire ſtate of the inveſting membrane, and the ſeparation of the polypus, from its ſingle point of attachment, will, upon careful examination, appear irrefragable proofs.

It may perhaps be remarked that, in what I have offered concerning this diſtemper, I have confined myſelf merely to the operation of extraction only; and have ſaid nothing concerning the various methods and means which have been propoſed for its deſtruction.

I am very ſenſible that many of our books are furniſhed with relations of attempts made by eſcharotics, and by a kind of medicated ſetons, ſome of which have been ſaid to be ſucceſsful. If I had ever found them ſo, I ſhould have been glad to have related it, but I cannot ſay that I have; on the contrary, all that I have done of this kind, or have ſeen done by others, has ſerved more and more to deter me from practiſing it again. When the polypus is looſe, and fairly circumſtanced for extraction, it is not only the beſt method of cure, but is always adviſeable, and very frequently ſucceſsful; but when from immobility, largeneſs of attachment, malignity of nature, or from any other cauſe, it becomes unfit for the uſe of the forceps, it is always, as far as I have been able to obſerve, ſtill more unfit for cauſtic; nor indeed do I remember a ſingle caſe, which has been ſo circumſtanced as

to render the uſe of the forceps abſolutely unadviſeable, where the application of eſcharotics would not have been much more ſo, as experiment, in ſome of them, has fatally proved. The ſtructure and irritability of parts within the noſe, and the impoſſibility of confining the application, or limiting the effects of cauſtic medicines, in ſuch a part in whatever manner or form applied, are palpable objections à priori; and the very diſagreeable conſequences, which have been often found to follow from the inflammation and irritation, of what it was impoſſible totally to deſtroy, have been too ſerious to be ſlighted.*

The polypus ſometimes, inſtead of falling down the noſtril, makes its appearance backward in the fauces behind the uvula, in which caſe, the general method is, to extract it by introducing the inſtrument into the mouth inſtead of by the noſe.

This, though ſometimes practicable, is much more eaſily deſcribed than executed; and in ſome people will be found abſolutely impracticable. The objection ariſes from the great difficulty of keeping the tongue down in ſome, and in others from their incapability of permitting any thing to touch the root of that part, or any part of the fauces, without immediately producing a ſpaſm: to which might be added that, in ſome caſes, the polypus is ſo expanded as almoſt to conceal the uvula, which is therefore liable to be laid hold of, by the inſtrument, to the no ſmall detriment of the patient.

However large, pendulous, or expanded ſuch polypus may be, its attachment always is, and muſt be, within the cavity of the noſe, and therefore

* The method by ligature, whether of ſilk or wire, is not attended with the inconveniences of the cauſtic, and is certainly practicable in ſome inſtances; but, as far as I have ſeen of it, is by no means equal to that by the forceps, either for its general utility, or its capacity of perfectly eradicating the excreſcence. I know ſome ingenious practitioners, who approve of it; but I cannot ſay, from what has come within my knowledge, that it appears to me in ſo recommendable a light.

therefore always within the reach of a pair of forceps introduced that way, especially if the forceps be somewhat curved: and which, when the excrescence appears behind the uvula, will have one advantage superior to what it has when the polypus appears in the nose, which is, that it will be applied much nearer to the point of attachment, and, therefore, most likely to extirpate it perfectly.

I cannot leave this subject without cautioning the young practitioner to be exceedingly careful in examining and inquiring into all the circumstances previous to his undertaking a cure, lest he should find, too late, that he has gone too far to recede.

For want of such caution, I have seen hæmorrhages, which have been frightful, and inflammations which have proved fatal. I have seen a case, wherein an untoward-looking polypus, and which ought not to have been meddled with, has been so attached to a distempered septum nasi, that it has come away with it: I have seen the same thing happen with regard to almost the whole of the ossa palati: and I have more than once known a polypose thickening of the membrane covering the ossa spongiosa, and septum nasi, which, in all probability, would have remained quiet a great length of time, so irritated by rough treatment, and successless attempts, as to render the remainder of the patient's life truly miserable to himself, and offensive to others.

CANCER

CANCER SCROTI

RAMAZINI has written a book de morbis artificum; the Colic of Poictou is a well-known diſtemper; and every body is acquainted with the diſorders to which painters, plummers, glaziers, and the workers in white lead, are liable: but there is a diſeaſe as peculiar to a certain ſet of people, which has not, at leaſt to my knowledge, been publickly noticed; I mean the chimney-ſweepers' cancer.

It is a diſeaſe which always makes its firſt attack on, and its firſt appearance in, the inferior part of the ſcrotum; where it produces a ſuperficial, painful, ragged, ill-looking ſore, with hard and riſing edges: the trade call it the ſoot-wart. I never ſaw it under the age of puberty, which is, I ſuppoſe, one reaſon, why it is generally taken, both

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by patient and ſurgeon, for venereal, and being treated with mercurials, is thereby ſoon, and much exaſperated: in no great length of time, it pervades the ſkin, dartos, and membranes of the ſcrotum, and ſeizes the teſticle, which it inlarges, hardens, and renders truly and thoroughly diſtempered; from whence it makes its way up the ſpermatic proceſs into the abdomen, moſt frequently indurating, and ſpoiling the inguinal glands: when arrived within the abdomen, it affects ſome of the viſcera, and then very ſoon becomes painfully deſtructive.

The fate of theſe people ſeems ſingularly hard; in their early infancy, they are moſt frequently treated with great brutality, and almoſt ſtarved with cold and hunger; they are thruſt up narrow, and ſometimes hot chimnies, where they are bruiſed, burned, and almoſt ſuffocated; and when they get to puberty, become peculiarly liable to a moſt noiſome, painful, and fatal diſeaſe.

Of this laſt circumſtance there is not the leaſt doubt, though perhaps it may not have been ſufficiently attended to, to make it generally known. Other people have cancers of the ſame parts; and ſo have others, beſide lead-workers, the Poictou colic, and the conſequent paralyſis; but it is nevertheleſs a diſeaſe to which they are peculiarly liable; and ſo are chimney-ſweepers to the cancer of the ſcrotum and teſticles.

If there be any chance of putting a ſtop to, or preventing this miſchief, it muſt be by the immediate removal of the part affected; I mean that part of the ſcrotum where the ſore is, for if it be ſuffered to remain until the virus has ſeized the teſticle, it is generally too late even for caſtration. I have many times made the experiment; but though the ſores, after ſuch operation, have, in ſome inſtances, healed kindly, and the patients have gone from the hoſpital ſeemingly well, yet, in the ſpace of a few months, it has generally happened, that they have returned either with the ſame diſeaſe in the other teſticle, or

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in the glands of the groin, or with ſuch wan complections, ſuch pale, leaden, countenances, ſuch a total loſs of ſtrength, and ſuch frequent and acute internal pains, as have ſufficiently proved a diſeaſed ſtate of ſome of the viſcera, and which have ſoon been followed by a painful death.

If extirpation ever bids fair for the cure of a cancer, it ſeems to be in this caſe; but then the operation ſhould be immediate, and before the habit is tainted. The diſeaſe, in theſe people, ſeems to derive its origin from a lodgment of ſoot in the rugæ of the ſcrotum, and at firſt not to be a diſeaſe of the habit. In other caſes of a cancerous nature, in which the habit is too frequently concerned, we have not often ſo fair a proſpect of ſucceſs by the removal of the diſtempered part; and are obliged to be content with means, which I wiſh I could ſay were truly palliative: but here the ſubjects are young, in general in good health, at leaſt at firſt; the diſeaſe brought on them by their occupation, and in all probability local; which laſt circumſtance may, I think, be fairly preſumed from its always ſeizing the ſame part: all this makes it (at firſt) a very different caſe from a cancer which appears in an elderly man, whoſe fluids are become acrimonious from time, as well as other cauſes; or from the ſame kind of complaint in women who have ceaſed to menſtruate. But be all this as it may, the ſcrotum is no vital organ, nor can the loſs of a part of it ever be attended with any, the ſmalleſt degree of inconvenience; and if a life can be preſerved by the removal of all that portion that is diſtempered, it will be a very good and eaſy compoſition; for when the diſeaſe has got head, it is rapid in its progreſs, painful in all its attacks, and moſt certainly deſtructive in its event.

OBSER-

OBSERVATIONS

AND

CASE

RELATIVE TO

RUPTURES, &c.

SECT. I.

Diseases of the Omentum, particularly Omental Herniæ.

THE general doctrine regarding these, is, that although they are sometimes troublesome, from their weight and size, yet the omentum being insensible, and very little, if at all, necessary to vitality, they do not call for our immediate assistance, and never endanger the patient's life.

That omental ruptures are not attended with those immediately-hazardous circumstances, which necessarily accompany intestinal ones, is a truth

a truth beyond all doubt; but that diſeaſes of the omentum are of little conſequence, or that this kind of rupture is ſo harmleſs, as never to bring the life of the patient into danger, and to prove poſitively, as well as eventually fatal, is a poſition which is by no means true.

Inteſtinal ruptures are, primarily and originally hazardous, and this hazard ariſes as well from the ſtructure, as from the functions of the parts concerned. The tender membranes of the inteſtines are very little able to bear any conſiderable degree of inflammation; and neither digeſtion of the food, propulſion of the chyle into, and through the lacteals, nor expulſion of the fæces from the large guts (offices abſolutely neceſſary to the very exiſtence of the animal) can be executed, while ſuch ſtricture is made on any part of the inteſtinal canal, as either hinders its natural motion, or renders its tube impervious; conſequently, whenever this happens, from whatever cauſe, the patient is immediately diſordered, and brought into a ſtate of hazard.

The omentum is not indeed ſo liable to injury, either from its ſtructure, or from its office; the diſlodgment of it from its natural ſituation within the belly, or its engagement in a ſtricture, ſeldom produce any immediate, or very preſſing ſymptoms; and therefore its confinement within a hernial ſac, has ſeldom been regarded as a matter of importance. Taken in a general ſenſe, it certainly is not. The diſplacement of a mere portion of caul, from its natural ſituation, and the detention of it in the groin or ſcrotum, will not, in general, occaſion any ſuch interruption in any of the functions of the animal, or ſo diſorder its internal œconomy, as to produce a conſiderable degree of pain, or hazard: but whoever from thence concludes, that omental ruptures are abſolutely void of danger, will find himſelf much deceived: a more attentive obſervation of the diſeaſe, and of its effects, will inform him, that very conſiderable miſchief ſometimes attends them, and that the ill conſequences of neglect or miſmanagement, though perhaps leſs frequent, and leſs rapid, are not leſs real.

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The ills which may attend omental herniæ, are of two kinds: one of which is primary or original, proceeds from the part which firſt formed the rupture, and is confined to it, independent of any other; the other is ſecondary, or an accidental conſequence, flowing indeed from the ſame original malady, but affecting other parts alſo.

The omentum is liable to inflammation, ſuppuration, gangrene, mortification, and ſcirrhus, while in its natural ſituation within the cavity of the belly; and each of theſe ſtates is often the real, though moſt commonly unſuſpected cauſe of very alarming ſymptoms, and not infrequently of death. It is not only liable to the ſame morbid alterations, when thruſt forth from the cavity into a hernial ſac, but the neglect or miſmanagement of it, when there, is productive of theſe and other evils, which, for want of a proper attention, have either been totally overlooked, or ſet to the account of other cauſes. Violent, or continued, preſſure on it has produced inflammation with all its conſequences; has brought on fever of a very bad kind, ſuppuration, ſlough, and ſphacelus; long confinement of it, within a hernial ſac, has occaſioned ſuch other alteration in its form and texture, as to render it truly a diſeaſed body, and to produce many inconveniences from ſuch its morbid ſtate; and an undue or interrupted circulation through it, by means of ſtricture, occaſions, ſometimes, ſuch a collection of extravaſated fluid, in the ſac, as to render it a neceſſary object of a ſurgeon's attention; not to mention that the dragging down a larger portion of the caul, into the ſcrotum, proves ſometimes more than merely diſagreeable, by reaſon of its connection with the abdominal viſcera.

Theſe are ills, which ariſe from omental ruptures primarily, and are dependant upon the nature of the diſeaſe, conſidered abſtractedly, without any view to, or connection with any other. But there is another which, although it may be called ſecondary, or be conſidered as a conſequence, is both frequent and hazardous.

When a portion of the peritoneum, forming a hernial ſac, has been thruſt quite down into the ſcrotum, I believe I may venture to affirm (notwithſtanding what may have been ſaid to the contrary) that it ſeldom or never returns back into the abdomen again, but becomes immediately, and wholly, connected with the cellular membrane, inveſting the ſpermatic veſſels; ſo that whoever has once had ſuch ſac ſo protruded, can never have any ſecurity againſt the diſeaſe called a rupture, but what is derived from ſuch means as may render the entrance into that bag, too ſmall, to permit any thing to paſs from one cavity into the other. Upon this principle, and on this only, ſtands the utility, and indeed the neceſſity, of Truſſes and ſuch kinds of bandages. By theſe in infants, and in young ſubjects, ſuch a coarctation, or leſſening of the entrance into the ſac, is produced, that a firm and permanent cure is often obtained; but in the majority of adults, and in all people far advanced in life, ſuch effect is not to be expected. It does indeed happen to ſome few, but it is to be regarded as an accidental benefit; and the bandage, being the only means, whereby a deſcent can be prevented, it ought to be conſtantly and unremittingly worn.

Whoever has a juſt idea of an hernial ſac, muſt be convinced, that while a body, or ſubſtance of any kind, poſſeſſes that part of it which communicates immediately with the belly, that ſuch paſſage can never be cloſed: and, conſequently, that the one point, in which even the palliative cure of a rupture conſiſts, can never be accompliſhed.

A portion of omentum, although it be compreſſible, ſoft, and ſlippery, will, while it remains in ſuch paſſage, keep it as conſtantly, and as certainly open, as any other body whatever; and from the very circumſtances of its being ſoft, ſlippery, and compreſſible, will ſtill more eaſily let any other body paſs by it: a portion of the inteſtinal canal is frequently preſſed againſt the mouth of this ſac, and that with conſi-

derable

derable force, the orifice being open, and the omentum affording but little reſiſtance, the ſaid portion is often puſhed into the bag, and by this means a new, and ſtill more intereſting and hazardous complaint, is added to the old one.

This happens much more frequently than it is ſuppoſed to do: and is, in the nature of things, ſo probable, that no perſon, who has an omental rupture, can, for any the ſhorteſt ſpace of time, be ſaid to be ſecure againſt the deſcent of a portion of inteſtine; and conſequently is always liable to every kind and degree of hazard attending an inteſtinal one.

CASE I.

A Gentleman, about forty-three years old had, for ſome time, been ſubject to a rupture of the omental kind, which came down when he was in an erect poſture, and went up with great eaſe when he lay ſupine.

I reduced it, and put on him a truſs, which anſwered the purpoſe very well, by keeping the rupture up all the while it was worn: but the patient diſliking the neceſſary degree of preſſure, and finding very little inconvenience from his diſeaſe, (it being merely a piece of caul) laid aſide the uſe of his bandage, and ſuffered his rupture to take its own courſe.

Being obliged to take a long journey on horſeback, and being apprehenſive that his complaint might, by exerciſe in hot weather, prove troubleſome, he had a mind to put his truſs on again, not doubting but that he could replace his rupture as eaſily as he had been accuſtomed to do: he tried ſeveral times, but could not accompliſh it: he came to me; I tried, and was foiled. I repeated the attempt again,

and

and again, but to no purpoſe, ſtill being clear that the diſeaſe conſiſted only of a portion of omentum, and that not large.

From me he went to one of the advertiſers; who having, for a day or two, amuſed him with anointing his groin, put on him a bandage with a large, hard, bolſter; which being buckled very tight, he was permitted to begin his journey, and was told that, long before he returned, the portion of caul would be ſhrunk to nothing, and his diſeaſe thereby cured. He ſet out, and got about twenty miles, when he found himſelf ſo ill, and in ſo much pain, that he determined to come back to London; which he accompliſhed with great difficulty.

I found him in extreme pain all over his belly, which would hardly bear being touched; he was incapable not only of ſitting or ſtanding upright, but even of lying ſtraight upon his back; he could hardly bear the weight of the bed-cloaths; and the moſt gentle preſſure, toward the bottom of his belly, and his groin, was intolerable. The ſcrotum, and ſpermatic proceſs, on the ruptured ſide, were ſwollen, tenſe, and inflamed; his ſkin was hot, and dry, his pulſe hard, and frequent, and he had ſuch a degree of reſtleſſneſs, that although motion was very painful to him, yet he could not lie ſtill for two minutes.

Notwithſtanding the many opportunities which, before this accident, I had had of knowing the true nature of his rupture, and that I was perfectly convinced, that it had always been omental merely, yet from his acute pain, from the inlarged and inflamed ſtate of the proceſs, and from the nature and rapidity of his ſymptoms, I was much inclined to believe, that a portion of inteſtine had ſome ſhare in the preſent miſchief; but the patient who was a very intelligent man, inſiſted on it that it had not, and that all his preſent malady was cauſed by the preſſure of the truſs on the omentum.

I took

I took away a conſiderable quantity of blood, and, notwithſtanding the patient's opinion, directed a ſolution of the ſal rupell. in infuſ. ſenæ to be taken immediately, and a purging glyſter to be thrown up as ſoon as it could be got ready; for the parts were in ſuch a ſtate, that, had there been more convincing marks of inteſtinal ſtricture, reduction by the hand was at that time impracticable, and unfit to be attempted. I ſaw him in about ſix or eight hours. The diſcharge, per anum, had been ſuch as to put an end to all ſuſpicion of ſtricture on any part of the inteſtinal tube, but his inflammatory ſymptoms were not at all leſſened. I took away more blood, and would fain have put him into a ſemicupium, but the dread of motion prevented him from complying with it. His pain was exceſſive; and as he had now loſt a very conſiderable quantity of blood, and had had a very free diſcharge by ſtool, I threw up a glyſter of warm water, oil, and laudanum, and gave him two grains of extract. thebaic. by the mouth. He paſſed ſo bad a night, that he was glad, early in the morning, to comply with the uſe of the bathing-tub, by the repeated uſe of which, and taking care to keep the body open, by lenient, oily, remedies, he, at the end of four days, got to be eaſy.

Fomentation and poultice reduced the tumefaction in the groin and ſcrotum, and when they were removed, the rupture appeared to be nearly in the ſame ſtate as before the accident, only a little larger.

Two years after this he died, and was opened; his rupture was found to be merely omental, and the portion of caul which formed it was, in its inferior part, adherent to the hernial ſac in two places.

CASE

CASE II.

A Young man, who worked as a journeyman with a ſilver-ſmith in Foſter-lane, came to me three or four different times, on account of a rupture, which appeared to have every mark of being merely omental.

It was large, and had, as he ſaid, been for ſome years eaſily reducible; but it was not at all ſo at his laſt viſit to me. By a late increaſe of ſize and weight, it was become very troubleſome, as well as very viſible. Finding reduction impracticable, I recommended to him the uſe of a ſuſpenſory bandage, and gave him directions for his general conduct.

At the diſtance of about ſix months from his laſt viſit, I was ſent for to St. Bartholomew's hoſpital in a hurry, to a perſon ſuppoſed to labour under a hernia with ſtricture.

I found a man, who was only not dead; he had a dying countenance, a faultring pulſe, a conſtant hiccough, and cold extremities.

As it did not appear to me, that it was poſſible for me to do him any ſervice, I was going away, but was called back at the patient's particular requeſt. He made himſelf known to me to be the perſon I have juſt mentioned; and a friend, who was with him, gave me the following account:

That a few days before, having an intention to marry, and believing that his rupture would be prejudicial to him, he had applied to ſomebody who had been recommended to him, for relief: that the perſon to whom he applied, having received from him ſuch gratuity as he could afford at that time, in part of payment, had promiſed to cure him within a month: that he anointed him for two or three days, with

with an ointment, and then put on him a very ſtrict bandage: that he was ordered to wear this bandage conſtantly, day and night: that when he had worn it three days, not being able longer to endure the pain it cauſed, he took it off, and went to his ſurgeon, who ſeemed to be ſurprized; and bad him go home, apply to his groin and ſcrotum a poultice made of boiled turnips and hog's-lard, and come to him again the next day: that the inflammation and ſwelling increaſing, he was prevented from fulfilling the laſt injunction, and therefore ſent for his operator, who came to him, examined the parts, ſaid he had got the pox, and refuſed to do any thing more for him without the depoſit of another five guineas, and that not being able to comply with this demand, his friends had brought him to the hoſpital.

The ſcrotum had been of conſiderable ſize, but was now ſubſided; it had been very painful, but was now eaſy; it was in many places livid; and, upon handling, the fingers perceived that alarming crepitus, which infallibly denotes putrid air from gangrenous membranes.

When I ſaw him in health, I was perfectly ſatisfied that his rupture was merely omental; I was as much ſatisfied, that his preſent ſtate was owing to his bandage; but nevertheleſs I cannot but ſay, that I ſuſpected a piece of inteſtine to have ſlipped down, and to have occaſioned this fatality by being preſſed on.

I inquired into his diſcharge by ſtool, and was told, that he had a large one within the laſt two days, but having often experienced how liable people are to deception, in theſe caſes, I did not give intire credit to the account.

That evening he died, and next morning he was opened.

The ſcrotum and hernial ſac were completely mortified, and within the latter, was a ſmall quantity of a moſt exceedingly offenſive ſanies, together with a large piece of ſphacelated omentum only. The whole inteſtinal tube was within the belly perfectly ſound, and in good order,

but the omentum, within that cavity, had partaken conſiderably of the miſchief done to that part of it which was in the hernial ſac, and was gangrenous throughout.

CASE III.

I WAS deſired to viſit a gentleman at Hackney, who had, for ſome years, been afflicted with a rupture, which, at different times, had been examined by Mr. Sainthill, Mr. Samuel Sharpe, and others; and had, by every body, been deemed to be merely omental. For ſome years it had been kept up by means of a ſteel truſs; but, a few months before I ſaw him, he had laid aſide his truſs, and had put on a dimoty bandage, with a large bolſter, which he had worn very tightly buckled. How he had managed himſelf in other reſpects, I know not; but I found him with his groin and ſcrotum much ſwollen, and very painful to the touch; he was hot and feveriſh, and had been two days without a ſtool. The ſtate of the parts was ſuch, that an immediate attempt to reduce the rupture by the hand was impracticable, at leaſt could not have been attended with any probability of ſucceſs. He was immediately let blood, had a glyſter, and an aperient draught. Next day I found him worſe, in more pain, with more inflammation, and a greater degree of tumefaction, and had not yet had a ſtool. I was obliged to depend upon the patient's own account of his caſe previous to this attack. He inſiſted on it, that his rupture had never been inteſtinal, and that every body who had ſeen it, had given him that aſſurance. This I could not contradict, but was, at the ſame time, much inclined to believe, that a portion of inteſtine was down now. The cataplaſm was applied over the whole ſcrotum and groin, a ſtimulating glyſter again thrown up, and a purging mixture ordered to be taken, cochleatim, every two hours, until he ſhould have ſtools, but all to no purpoſe.

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On the third day he was worſe in every reſpect; his belly exceedingly tenſe, his pain great, his reſtleſſneſs fatiguing, and he felt not the leaſt tendency towards a diſcharge per anum.

I propoſed the operation, but the patient and his friends objected. A glyſter, of an infuſion of tobacco, was adminiſtered. This produced ſuch ſickneſs, and languor, with cold ſweats, &c. as alarmed every body, but produced no ſtool.

Late in the evening, he ſubmitted to the operation. The parts were now ſo altered, that I guarded myſelf with a moſt doubtful prognoſtic. I made an inciſion from the groin, to the bottom of the ſcrotum; the ſkin, dartos, and hernial ſac, were all gangrenous; and, from the cavity of the ſac, I let out a conſiderable quantity of a moſt offenſive ſanies, and with it, a large, putrid ſlough, which appeared to have been a part of the omentum. I examined the opening in the abdominal muſcle, and was ſatisfied that it was in a natural ſtate, and that nothing from the abdomen was engaged in it. On which account I did not meddle with it, but, having dreſſed the wound ſuperficially, put on his poultice again. Dr. de la Cour was preſent at the operation, and directed for the patient. Another day paſſed without ſtool, and this I thought muſt have been his laſt day, but on the fifth he had a moſt plentiful diſcharge, and was thereby relieved from the tenſion of his belly, and his moſt troubleſome ſymptoms.

The ſore was a long time crude and unkindly, but by means of the bark, and proper diet, all difficulties were ſurmounted, and the patient got well.

Had a piece of inteſtine been in the ſac, it muſt, I think, have neceſſarily partaken of the ſtate in which both it and the omentum were; and although the patient might poſſibly have ſurvived, yet a diſcharge of fæces through the wound muſt, at leaſt for a time, have been the conſequence; but here was nothing of that kind, nor any reaſon, after

the conſtipation was removed, to ſuppoſe that the inteſtine had ever ſuſtained any injury, or had any ſhare in the complaint.

CASE IV.

A MAN, about fifty-five years old, aſked my opinion concerning a hard ſwelling, which he had on each ſide, both in the groin and ſcrotum.

To the eye they appeared like omental herniæ; but, upon examination, they were not only unequal in their ſurface, but craggy, and incompreſſibly hard.

The patient ſaid, that, at the time of handling them, they gave him very little uneaſineſs, but that ſuch handling always made them painful for ſome time after: that he was, at times, attacked with acute pain darting through his belly, up into his loins, and that ſuch attack was frequently attended with a nauſea, and an inclination to vomit: that he had been ſubject to a painful cholic, attended generally with conſtipation of belly: that an erect poſture, if continued for any length of time, was very irkſome: that theſe ſwellings were, for ſeveral years, ſoft and eaſily returnable into the belly: that while they were ſo, he had, by the advice of Mr. Samuel Sharpe, worn a ſteel truſs, but that being engaged in a buſtling, active kind of life, and the truſs not always doing its duty, he had left it off for ſome years. That for the laſt two years, he had never been able to return either of them, ſince which they had altered very much: that, in their preſent ſtate, he had conſulted ſeveral of the profeſſion, and ſome quacks: that by ſome they had been deemed ſcirrhous teſticles, by others, ſcirrhi of the ſpermatic proceſſes: that he had gone through a courſe of mercurial inunction; had taken freely of the ſolution of ſublimate

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cu. decoct. rad. ſarſaparillæ, and had (in his own phraſe) ſwallowed a wheel-barrow full of cicuta; that he had been promiſed a cure by having them laid open, to which he had ſubmitted, had not the operator been too laviſh in his promiſes, and too exorbitant in his demands; and that frequent attempts had been made to ſoften them by fomentation, poultice, &c. but all to no purpoſe.

He had a ſallow complection, a languid fatigued look, a weak, irregular pulſe, too much heat and thirſt, and too little urine: upon the whole, he ſeemed a very improper ſubject for any chirurgic treatment, if any could have been rationally propoſed; but as it did not appear to me that anything of that kind could be done for him, I adviſed him to keep his ſcrotum ſuſpended, and to conſult a phyſician on account of his general ſtate.

Not long after, his legs ſwelled, he loſt his appetite, and his urinary ſecretion almoſt totally ceaſed. The conſequence of which was, a general anaſarca, and death.

In each groin, and on each ſide in the ſcrotum, was a hernial ſac, bearing all the marks of antiquity: in each of theſe was a hard, knotty, irregular kind of body, whoſe ſurface was covered with varicous veſſels.

Theſe bodies paſſed from the cavity of the belly, through the opening in the abdominal muſcle, were continuations from the omentum, and were truly cancerous.

CASE V.

THAT the reſidence of a portion of omentum, in an open hernial ſac, muſt render the patient conſtantly liable to the deſcent of a portion of inteſtine, is ſo ſelf-evident, that it cannot admit the ſmalleſt doubt, but the following caſe being rather remarkable, I have inſerted it.

A drunken,

A drunken, idle, fellow, who lived in the neighbourhood of St. Bartholomew's, uſed to come frequently to the ſurgery for pledgits for broken heads, &c. He had alſo a ſmall omental hernia, as fairly and deciſively characteriſed as poſſible. Myſelf, and all the ſurgeons had, at different times, replaced it for him, and the hoſpital had, once or twice, given him a truſs; but being much oftener drunk than ſober, he ſeldom wore it at all, and when he did, it was ſeldom in the right place.

One day, while I was at the hoſpital, he was brought in with an immenſe ſwelling of the ſcrotum, and all the ſymptoms of a hernia with ſtricture, and thoſe ſo far advanced, that he had no chance but from the operation, which I therefore performed immediately.

In the ſac was a conſiderable portion of the ileum, and a large piece of the colon, with the appendicula vermiformis, together with the ſmall piece of omentum, which had conſtituted the original rupture. The parts were mortified, and the man died.

Unleſs it can be ſuppoſed, that ſo large a quantity of inteſtine could, by every body, be miſtaken for a ſmall one of omentum only, it muſt be clear, that the reſidence of that ſmall piece of omentum gave the opportunity for the formation of the inteſtinal hernia, and coſt the poor man his life; more eſpecially if it be noted, that the increaſe of tumefaction, and attack of bad ſymptoms, were the immediate conſequence of an exertion of ſtrength.

CASE VI.

WHILE I was correcting theſe papers for the preſs, I was deſired to go down to St. Katherine's to ſee a patient, who was ſuppoſed to be afflicted with an incarcerated hernia.

I found

I found a man between ſixty and ſeventy, whoſe ſcrotum was large and full, and, as I thought, contained both omentum and inteſtine.

It was the third day ſince he had had a ſtool, although gentle cathartics had been given each day. His pulſe was rather full, but otherwiſe not much amiſs; he had now and then an inclination to vomit, and his belly was very tenſe; but, on the other hand, he had neither the ſenſation of general or local pain, either upon being examined, or put into motion, which perſons labouring under a ſtricture, moſt commonly have; neither had the ſpermatic proceſs the feel which it uſually has in ſuch caſes.

I could not ſay that I thought him in immediate hazard, although the irreducibility of his rupture, and the length of time which had paſſed ſince he had a ſtool, were certainly unfavorable circumſtances. I directed a tobacco-glyſter to be given immediately, and five grains of extractum catharticum to be taken, alternis horis, until he ſhould have a ſtool. The glyſter was adminiſtered and repeated, and the pills were taken, and I viſited the patient early the next morning.

He had not had any diſcharge per anum, his belly was become much more tenſe, and I thought him, upon the whole, ſo much worſe, that I propoſed the operation, and the patient ſubmitted to it.

In the hernial ſac was a large piece of omentum, or rather of what had been omentum, but which was now hardened into a large, flat, cake, as incompreſſible as cold bees-wax, and about the ſize of a large mangoe; it diſtended all the upper part of the ſac, and was adherent to the lower part of it: behind this large body lay a portion of the inteſtinum ileum, and below this, that part of the colon which is annexed to it: the colon was conſiderably diſtended with flatus, and the ileum was ſo wedged in and preſſed, by the altered omentum, that nothing could poſſibly paſs through it: when the portion of omentum was removed, the tendon made ſo little ſtricture on the gut, that, had

it

it not been for the great diſtention of the colon, it might have been returned into the belly without diviſion.

In ſhort, the conſtipation of belly, and miſchief proceeding from thence, ſeemed to ariſe intirely from compreſſion made by the hardened omentum, and not from a ſtricture.

In my general treatiſe on ruptures, I have ventured to diſſent from the commonly-received doctrine concerning the propriety of tying the omentum, previous to its extirpation, when it may be found neceſſary to remove a part of it; and have ſaid, that I thought it not only unneceſſary, but pernicious.

Perhaps I may have conceived an unreaſonable prejudice againſt this practice, and it may not appear to others ſo hazardous, or ſo improper, as it does to me; perhaps the caſes, which follow, and which are ſome of thoſe that have furniſhed me with my objections, may not be thought caſes in point; and the miſcarriages in them, may be thought to be deducible from other cauſes: all I can ſay is, that it appeared to me, that the patients ſuffered principally, if not merely, from this cauſe; and that as I am by repeated experience convinced, that a portion of the omentum, however large, may be extirpated with perfect ſafety, without being previouſly tied, I ſhall never practiſe, or adviſe the ligature.

CASE VII.

A MAN, about thirty years old, was taken into St. Bartholomew's hoſpital for a conſiderable ſwelling of the groin and ſcrotum.

The account he gave of himſelf was as follows: That he had had, for ſeveral years, a rupture, which many ſurgeons, who had ſeen it, had

had deemed to be merely omental: that he had formerly had a truſs, but whether from its being ill made, or from his injudicious manner of wearing it, it had never kept his rupture properly up, and he had long diſuſed it; and that the day before he was brought into the hoſpital, a horſe had kicked him in the groin, and brought on that increaſe of pain and ſwelling of which he now complained.

It was Mr. Nourſe's week for accidents, and he conſequently took the care of him. He was let blood, had a glyſter, and a poultice was applied.

The next day the ſwelling was the ſame, and the man had not had any ſtool. A purge was adminiſtered, which he ejected by vomit; and another glyſter was injected in the evening. On the third day, finding that nothing had paſſed, Mr. Nourſe ſuſpected, that the inteſtine was concerned: he bled the man again largely, and ordered two ſpoonfuls of a purging mixture to be given every two hours, until he ſhould have ſtools. That evening he vomited two or three times, and next morning, being ſtill without a ſtool, Mr. Nourſe determined upon the operation.

The hernial ſac was found, thick, and tough, and contained a portion of omentum, and ſome bloody water. Mr. Nourſe and myſelf both examined the omentum, carefully, upon a ſuppoſition that we ſhould find ſome inteſtine within it. It was perfectly ſound, but its veſſels were conſiderably dilated: there was no inteſtine, nor did the tendon bind upon the omentum. As there was no gut down, and as the portion of caul was now too large to repaſs the ring, Mr. Nourſe made a ſtrict ligature on it, juſt on this ſide, and cut it off.

Soon after the operation, the man had ſtools, but, during that night, got little or no ſleep, and complained of much pain. The next day he was worſe, was feveriſh, complained of great pain about his navel, and that he could not ſit, or ſtand upright, but had two looſe ſtools.

On the third day he was ſtill worſe, that is, had more fever, complained that his pain in his belly was exceſſive, and could keep nothing on his ſtomach. On the fourth day, toward evening, his pain ſuddenly left him, and, early the next morning, he died.

Mr. Nourſe, who was ſtill apprehenſive that the inteſtinal canal was ſome way or other concerned in the miſchief, deſired me to open the body.

The abdominal tendon was ſound and unhurt, nor was there any ſuch appearance about the wound as always accompanies miſchief proceeding from thence: the inteſtines were perfectly free from blemiſh, inflammation, or obſtruction, nor was there any appearance of diſeaſe of any kind on or about any of the viſcera, except the omentum, which was gangrenous through its whole extent.

What ſhare the inflammation of the omentum might have in preventing a free paſſage through the inteſtines I know not, nor to what other cauſe ſuch obſtruction might poſſibly be owing; but that the omentum was ſound, at the time of the operation, and gangrenous when the patient died, is beyond all doubt.

CASE VIII.

A MAN about forty years old, who had for ſeveral years been afflicted with a rupture, which had always been deemed to be merely omental, was brought into St. Bartholomew's hoſpital, labouring under all the ſymptoms of an inteſtinal hernia, with ſtricture; and thoſe ſo preſſing, that the operation immediately performed was his only chance.

Upon dividing the ſac, a large piece of omentum (which was conſiderably thickened in its texture, and whoſe veſſels were conſiderably diſtended)

diſtended) preſented itſelf. This was carefully expanded, as far as it would admit, and laid firſt on one ſide, and then on the other, but no other body diſcovered. The inciſion being continued higher up, in order to get at the ring, as it is called, a portion of inteſtine was diſcovered; it was ſo ſmall, as hardly to conſiſt of the whole diameter of the gut, but begirt very tightly. I had, when the inteſtine was fairly in view, a mind to try whether I could not return it without dividing the tendon, and ſucceeded in the attempt. When this was done, the conſideration was, what to do with the omentum. It was ſo large, and ſo affected by ſtricture, that it could not repaſs the abdominal tendon without diviſion.: as the gut was returned, it ſeemed a pity to divide the tendon merely on account of the caul: it was therefore determined to tie it, and cut it off.

The man had a plentiful ſtool in an hour after the operation, but toward evening, and during the night, was much out of order. Next morning he was hot and reſtleſs, had a frequent and full pulſe, complained of great pain about his navel, and all over his belly, which was much too tenſe, and he was now and then very ſick.

Blood was drawn from him freely, he had an oily, laxative, glyſter, and Dr. Pitcairn directed for him. On the third day, all his febrile ſymptoms, and his pain, were much exaſperated, notwithſtanding he had three or four ſtools.

I think I may venture to ſay, that both the phyſician and myſelf, did every thing in our power for him, but on the fourth evening he died.

As the caſe had given me ſome concern, upon a ſuppoſition that the man might have had a better chance, had the tendon been divided for the return of the gut. I opened him as ſoon as I had notice of his death. I examined the whole inteſtinal canal, and found it free from blemiſh, the peritoneum was unaltered; but all that was left of the omentum was gangrenous.

CASE IX.

A MAN, about thirty-ſix years old, was a patient in St. Bartholomew's for a ſore leg. While he was there, he deſired me to look at a rupture, which he had long had, and which was clearly omental and irreducible.

When his leg was well, he deſired me to cut him, as he called it; alledging, that his rupture was ſo troubleſome, that it prevented him from following his buſineſs. I refuſed it, and directed him to wear a ſuſpenſory bag.

He ſollicited me again and again, and, at laſt, overcome by his importunity, I performed the operation. The ſac was thin, and the piece of omentum not large, nor at all altered, nor was there any thing elſe in the bag. I made a ligature, and cut it off without meddling with the tendon. From the time of the operation, he was in conſtant pain all over his belly.

Bleeding, laxative medicines, glyſters, &c. were adminiſtered, but to no purpoſe. On the fourth day he died, and had no appearance of miſchief about him, except a highly inflamed omentum.

Inte-

Inteſtinal Herniæ.

WHEN a portion of inteſtine, which has paſſed out from the cavity of the abdomen through the opening in the oblique muſcle, is ſo begirt as not to be capable of executing its proper office, the perſon, to whom this happens, may be ſaid to be in immediate danger.

The general offices of the inteſtinal tube are, digeſtion of the food, formation of chyle, impulſion of it into the lacteals, and expulſion of the fæces forth from the body. If theſe ſo neceſſary functions are, for any conſiderable time, ſuſpended, or prevented, the conſequence is too obvious to need mentioning: fortunately for mankind, this cannot happen unknown to us. Whenever ſuch ſtricture is made, ſymptoms and complaints ariſe which warn us of our danger: pain, tumefaction, and incapacity of going to ſtool, are the firſt and moſt immediate effects; if the caſe be neglected, or no proper remedy uſed, inflammation, fever, ſickneſs, and vomiting, ſoon follow; and theſe are often, in a ſhort ſpace of time, ſucceeded by hiccough, gangrene, and mortification. Whoever conſiders, what the firſt of theſe are indications of, and knows what will inevitably be the conſequence, if they be not obviated, muſt be ſenſible, that the very ſlighteſt attack of this kind ought to put us on our guard, and excite us to uſe our utmoſt endeavours to prevent farther miſchief. How long the firſt, and ſeemingly ſlighteſt ſymptoms may continue, before material injury be done, no man can pretend to ſay; this muſt depend upon a variety of circumſtances, and will be different in different caſes; but as no man can be duly and intimately acquainted with theſe circumſtances, and as the change

change from the moſt ſlight, to the moſt hazardous, is ſometimes very rapid, no one can be vindicated in ſuffering the ſmalleſt portion of time to be loſt by waiting a few hours.

The firſt thing to be done is, to attempt the reduction of the inteſtine; if this fails, our next endeavour muſt be to relieve the ſymptoms, and thereby remove the obſtruction to ſuch reduction.

The means preſcribed for this purpoſe are, phlebotomy, glyſters, cathartics, a ſemicupium, or warm-bath, fomentation, embrocation, and cataplaſm; and theſe, by the generality of our writers of ſyſtems and inſtitutes, are ordered indiſcriminately, as if their efficacy were nearly equal, and it was a matter of indifference which a practitioner made uſe of. This I cannot conceive to be true; ſome of them are really uſeful; but others, as far as my experience goes, of little or no uſe at all; among the former, I reckon phlebotomy, cathartic medicines, glyſters, and the warm bath; among the latter, embrocation, fomentation, and poultice: the former have ſaved many a life; from the latter, I never ſaw any material benefit, though I have often and often tried them; and I am much inclined to believe, that the uſe of them has coſt many a perſon dear, by occaſioning a loſs of that time, which ought to have been otherwiſe employed. The inflammation, and diſtention of the inteſtine, can never be removed while it is begirt by the tendon of the abdominal muſcle; whatever may be the original cauſe of the ſtricture, the effect muſt be the ſame; the tendon lies out of the reach or influence of a greaſy poultice; the external ſkin may indeed be relaxed by it, and ſome ſmall part of the uneaſineſs may thereby be relieved, but this is of no importance toward appeaſing the ſymptoms, leſſening the hazard, or affording a remedy for the original evil: the mere relaxation of the ſkin will not affect the ſtricture made by the tendon, the warmth of the poultice will increaſe the diſtention, and the inteſtine will become gangrenous, notwithſtanding

withſtanding a ſmall part of the external inflammation may ſeem to be appeaſed.*

If the ſymptoms are neither ſuch, nor ſo preſſing, as to require the chirurgic operation; or if the fears and apprehenſions of the patient, or of friends, prevent ſuch operation, however neceſſary it may be, the moſt powerful, and moſt efficacious means of obtaining relief are, phlebotomy, warm-water, and the exhibition of ſuch medicines as are likely to produce ſtools: by the firſt we reduce the ſtrength of the patient, leſſen the velocity of the circulating fluids, moderate the febrile heat, and take the chance of a deliquium; by the ſecond we endeavour to relax the tendinous opening by which the inteſtine is begirt; and by the third, the diſcharge of fæces, through the inteſtinal canal, is attempted. The power of the two firſt is clear and undoubted, but I cannot help thinking, that we are, in ſome degree, wrong about the laſt. Cathartic medicines have, in all times, been preſcribed in the caſe of hernia with ſtricture; but the true intention, which ought by their means to be aimed at, does not ſeem to have been, in general, clearly underſtood: this perhaps is the reaſon why practitioners and writers diſagree ſo much about the kind of medicines which they think moſt proper; ſome adviſing thoſe which are of the lenient unirritating kind, others preſcribing thoſe which are moſt ſtimulating: both cannot be right, and therefore it may be worth while to enquire, what ſhould be the point aimed at, and which are the moſt likely means to accompliſh ſuch end.

Is a diſcharge, per anum, the primary view, and therefore the firſt object of attention? or is ſuch diſcharge to be regarded only as a neceſſary,

* Cold, diſcutient applications, bid much fairer to retard the haſty progreſs of the inflammation, than warm ones; and will be found to anſwer the purpoſe much better. Such as ſolutions of ſal ammoniac. crud. in vinegar, the ſp. mindereri, the acet. lythargirit. and ſuch like.

ceſſary, or natural conſequence of the removal of the inteſtine from its priſon? If the former be the caſe, it is clear, that in the circumſtances in which ſuch patient muſt be, ſtools cannot be procured too ſoon, or by means which are too eaſy; and that ſuch medicines as are moſt likely to ſlip through without ſtimulus, or irritation, muſt be the moſt proper, and moſt likely to anſwer the end: but if the caſe be otherwiſe, if the firſt view ſhould be to extricate the gut from its ſtricture, and the diſcharge of fæces is to be regarded only as a neceſſary conſequence of ſuch removal, then, I think, it is as clear, that ſuch lenients are unfit, becauſe unequal to the taſk; and that a power or faculty of ſtimulating or irritating the muſcular coat of the inteſtinal canal, ought to be the property of whatever is adminiſtered.

That a depletion of that canal is a great and immediate relief to the patient, by unloading the belly, and leſſening the tenſion, is beyond a doubt; and it is as true, that without ſuch diſcharge, the patient muſt periſh, even though the ſtricture be taken off; but ſtill the two objects are diſtinct and different, and the removal or extrication of the impriſoned piece is clearly the firſt.*

When purgative medicines of any kind are given by the mouth, in the caſe of a ſtrangulated hernia, and do not ſucceed in removing the inteſtine from the ſtricture, they are either rejected by vomit or by deriving

* It may not improperly, in this place, be aſked, whether the operation of a purging medicine may not be different from either of theſe? and whether it may not be in an incarcerated hernia what it ſometimes is in an ileus, where it often ſeems to act by overpowering that ſpaſm which had begun to excite inflammation, and would ſoon bring on mortification? What ſtill adds force to this method of reaſoning is, the conſideration of the great relief always obtained from a warm bath. Whether this be generally true or not, it is certainly well worth conſideration. May not from this alſo be inferred, the reaſon why opium, joined with purgatives, is ſometimes, in the ſame diſeaſe, found to render the operation of the latter more ſucceſsful.

riving an increaſed quantity of acrimonious fæcal matter downward, add to the pain and tenſion of the belly.

This is a very material objection to the uſe of all cathartics, given by the mouth, and more eſpecially to thoſe whoſe bulk, or quantity is at all large, and renders the application of ſuch kind of medicines, to that part of the inteſtinal canal which is below the ſtricture, much preferable.

Indeed the ſuperior advantages of ſtimulating medicines, given per anum, are, in this caſe, many and great; they give much leſs diſturbance to the ſtomach, they occaſion no pain in the belly, nor do they at all increaſe the load or tenſion; they may be repeated frequently, and, what is of the moſt conſequence, they may conſiſt of ſuch materials as cannot properly, or indeed ſafely, be given by the mouth. All theſe are manifeſt advantages, but the laſt circumſtance is peculiarly ſo, for the tobacco-ſmoke cannot poſſibly be ſwallowed, nor would any man in his ſenſes think of putting the infuſion into the ſtomach, although it is well known, not only that both may be very ſafely adminiſtered in the form of glyſter, but that they are the moſt powerfully efficacious, and the moſt uſeful medicines we are acquainted with, for ſuch purpoſe.

I have mentioned the ſmoak and the infuſion of tobacco, as being equally uſeful, and have, from repeated experience, found them ſo.

Where a proper machine is at hand, or can eaſily be procured, I ſhould certainly prefer the ſmoak to the infuſion; becauſe, the effects which both are apt to produce on the nervous ſyſtem of the patient are, I think, lighter in the former, than in the latter; but where ſuch machine has not been at hand, nor could be procured without a loſs of time, which, in theſe caſes, is always precious, I have frequently uſed the infuſion, and generally very ſucceſsfully. The ſymptoms ariſing from the intoxicating quality of the tobacco, the languor, the

cold ſweat, &c. which this weed cauſes, more eſpecially in thoſe who have not been accuſtomed to it, are, as I have ſaid, I think, rather more from the infuſion than from the ſmoak; but, though I have often uſed it, I do not remember ever to have ſeen any ill effect from it; it generally makes the patient very ſick,* and produces a fainting and a cold ſweat, which, to thoſe who do not immediately reflect on the intoxicating quality of tobacco, and the ſymptoms of ſuch intoxication, may appear alarming; but whether it be from the ſwooning, or from the irritation made in the inteſtinal canal, or, which is much moſt likely, from both conjointly, I have, ſeveral times, ſeen ruptures, which have reſiſted all attempts by the hand, return of themſelves, untouched, during the influence of ſuch glyſter.

Many other ſtimulating applications to the rectum, I have, at different times, made trial of, but never found any at all equal, in effect, to the tobacco; nor did I ever ſee any of them produce that convulſive motion of the muſcles of the abdomen, which moſt frequently accompanies the ſickneſs attending the uſe of this weed, and which, altho' fatiguing and troubleſome while it laſts, yet is certainly one of the means whereby the extrication of the portion of inteſtine is accompliſhed.

I have alſo ſeveral times ſeen them both fail, after fair and repeated trial. Whoever expects infallibility in medicine, will be diſappointed; but I can, with truth, affirm, that I have ſeen both the ſmoak and the infuſion ſucceed much oftener than any thing elſe, and ſometimes in very deſperate caſes.

* The infuſion, which I have always uſed, has been made by pouring one pint of boiling water on one drachm of tobacco.

CASE

CASE X.

I WAS desired to visit a ruptured patient with Mr. James, then surgeon to St. Luke's hospital.

The patient was a stout, healthy man, about thirty; the rupture was large, hard, painful, and beginning to be inflamed on the outside; no stool had passed for two days; the man had great pain all over his belly, and a frequent vomiting. Mr. James had, many times, tried to reduce it; he had bled him freely, and had given both purges and glysters, but all without effect.

The scrotum was exceedingly tense, and the pain which attended the most gentle handling was so exquisite, as not only to render all attempts for reduction, by the hand, improper, but hazardous.

It was about noon when I saw the man, every thing except the tobacco had been tried; the symptoms were advancing hastily, and the operation was proposed and submitted to; but while our things were getting ready, we thought we might as well try the smoak-glyster.

One ounce of tobacco was expended without any effect at all, either general or local, but toward the consumption of another, the patient became sick and faint, and complained of a strange kind of motion in his belly, and also in his rupture. Upon turning the bed-clothes back, the motion was not only to be felt within the scrotum, but was even visible; this motion continued about two minutes, when the intestine, without being touched, returned; the man became immediately easy; and, in half an hour, had a plentiful discharge per anum.

CASE XI.

IN the month of September, 1767, I was ſent for in a hurry to ſome little diſtance from London, in order to perform the operation for the bubonocele.

I found a very large rupture, on the right ſide, and that in ſo painful a ſtate, as not to permit the moſt gentle handling. The patient had been treated with the greateſt propriety; had been freely and repeatedly let blood, had taken purging medicines, glyſters, &c. and had been ſeveral times in a bathing-tub: his vomiting was frequent, he had a tendency to a hiccough, and he could not bear to extend, in the ſmalleſt degree, the thigh on the ruptured ſide.

The operation had been conſented to, before I had been ſent for; but upon my aſking the gentleman who attended if he had a machine for giving the tobacco-ſmoak glyſter, and being anſwered in the affirmative, we determined to try it firſt.

When about half an hour had been ſpent in the continual impulſion of the ſmoak, the man cried out, My rupture is going up; and, in the ſpace of two or three minutes, it did ſo, with a noiſe which was heard by every one in the room.

CASE XII.

A Gentleman, whom I had long known, had often ſhewed me a rupture, which he had laboured under as long as he could remember, and which was now and then troubleſome to him, becauſe he could not wear a truſs to keep it within the abdomen. It was of the

the congenial kind, that is, the ſac of the hernia was formed by what ſhould have been the tunica vaginalis teſtis, but his teſticle, on that ſide, had never deſcended from the groin, but lay juſt on the outſide of the abdominal opening, neither had the portion of inteſtine got any lower, ſo that both of them lay together, on which account he not only never could wear a truſs, but even the waiſtband of his breeches, if buttoned tight, was troubleſome.

This gentleman was ſuddenly ſeized with the ſymptoms of a ſtricture, and thoſe not ſlight, even at the firſt attack. The piece of inteſtine, though always in the groin when he was in an erect poſture, had always gone up upon his going to bed, and was always returnable when he was ſupine. He tried now to reduce it as uſual. He ſent for me, and all my attempts were equally ſucceſsleſs. His belly was very hard, he began to vomit, and the teſticle became very painful to the touch.

All the circumſtances were diſagreeable, the ſymptoms advanced with uncommon rapidity, the portion of gut was ſmall, the teſticle inflamed, and ſomewhat inlarged, an operation might become neceſſary, but could not, in ſuch circumſtances, be deſirable.

He was bled freely, even to ſwooning, purging medicines were given, and immediately rejected, glyſters had no effect, but were as immediately returned, and the patient, knowing his own ſituation, was much alarmed.

Dr. de la Cour, who was his phyſician, was called in; and having tried the tobacco-ſmoak, ineffectually, we agreed to throw up a pint of the infuſion, made as before related. It ſoon made him exceedingly ſick, and faint, and cauſed a large diſcharge of wind, upward and downward, from which I expected a return of the gut, but in vain. At the diſtance of an hour or two, the infuſion was repeated, with the ſame effect of faintneſs and ſickneſs, during which, he was put into warm

warm water, and when he had been in it a few minutes, the ſlighteſt application of the hand obtained immediate reduction, and ſtools.

CASE XIII.

THE late Mr. Fullager, deſired me to go with him to ſee a wine-merchant in Billiter-lane, who had all the ſymptoms of ſtrangulation in the caſe of a ſcrotal hernia, and whoſe rupture he had ineffectually endeavoured to reduce. I tried, and was alſo foiled. The ſymptoms were rather preſſing. Mr. Smith, in Cheapſide, who had been the apothecary to Mr. James's patient, was alſo apothecary here. It was determined, that I ſhould meet Mr. Fullager again, in about three hours, in order to perform the operation; and that, in the mean time, Mr. Smith ſhould throw up the tobacco-ſmoak. At the appointed time, we met, and found Mr. Smith employed as we had deſired; I laid my hand on the rupture to examine the ſtate of it, and it was wonderful with what facility it went up.

The ſame thing, exactly, happened to me with a coachman of the late Dr. Nicol of the Charter-houſe: but the ſame man, upon a return of the complaint, at about two years diſtance, was not again ſo fortunate, the ſmoak and infuſion both failed, and the operation was performed; but too late.

It is as yet, with many, a diſputed point, in the caſe of incarceration of a portion of inteſtine in a hernia, whether the ſtricture, made by the tendon, be original or conſequential; or, in other words, whether the diſeaſe be not originally in the inteſtine, and the ſtricture a mere effect of its diſlodgment, and diſtention. The arguments uſed

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in ſupport of the latter opinion are by no means void of force, but, at the ſame time, I cannot think them concluſive. The perfect health and eaſe of many, nay, of every body, immediately before a *ſudden* deſcent, the very preſſing and alarming ſymptoms with which ſuch deſcent is often attended almoſt inſtantaneouſly, and the relief which reduction immediately produces, in the majority of ſuch caſes, together with the immediate and total removal, or diſſipation of all the evils occaſioned by the confinement, ſeem to prove the general opinion to be true.

On the other hand, the perfectly quiet, eaſy, and uncompreſſed ſtate of the parts, in many inſtances, immediately previous to the inwaſion of bad ſymptoms, in caſes where there has been no exertion of ſtrength, nor any apparent acceſſion of a larger, and new portion of gut, are circumſtances which, added to the incapacity of the tendon to contract, are well worth weighing, as they certainly give force to the former ſuppoſition.

As a mere point of ſpeculation, it is not perhaps a matter of very great importance, but, when conſidered as applied to practice, and influencing our conduct with regard to the chirurgic operation, it becomes very intereſting indeed.

When the hand and the common means for reduction fail, the operation is our only reſource, and, if applied to in time, very ſeldom fails; ſo ſeldom that, I believe I might venture to ſay, not one in fifty * dies of it, if timely and judiciouſly executed; and when it becomes abſolutely neceſſary, it is the unicum remedium. This conſideration renders it a matter of ſtill more importance; for, as in caſes where it becomes neceſſary, and our only hope, it ought always to be propoſed; for the ſame reaſons, in caſes where it is not neceſſary, it ought not to be thought of; and where it cannot be of uſe, it ought not to be done.

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* I mean of the operation conſidered abſtractedly.

The inteſtinal tube, whether within the belly in its natural ſituation, or thruſt forth from it in the form of hernia, is liable to diſeaſes whoſe ſymptoms are peculiar to itſelf. Where there is no hernia, nobody doubts concerning the nature of the caſe; but where there is one, from the ſimilarity of the ſymptoms, it always takes the blame; often deſervedly, ſometimes much the contrary.

In the caſe of old, unreduced hernias, there is no reaſon why the portion of inteſtine, forming ſuch complaint, ſhould be exempt from ſuch diſtempers as the canal is liable to; on the contrary, it is reaſonable to ſuppoſe, that by ſuch unnatural ſituation and confinement, it would become rather more liable. But, be this as it may, certain it is, that inflammation of the inteſtine, violent diſtention of it, with loſs of periſtaltic motion, and ſtoppage of ſtools, is ſometimes the caſe in a hernia where the abdominal tendon has no ſhare in the miſchief; and as certain it is, that, in ſuch caſe, the operator can do no good. In ſome inſtances this may, by attentive inquiſition, be learned, and the operation thereby preſerved from a diſgrace: in others, it can only be known by its proving unſucceſsful.

When the diſeaſe is the mere conſequence of ſtricture, and the gut, previous to ſuch ſtricture, was free from diſtemper, it ſeldom, I might almoſt venture to ſay never happens, but that the ſetting it free is followed by a diſcharge per anum; eſpecially if ſuch intention be properly aſſiſted: but when the diſeaſe was originally in the inteſtine, and the inteſtine either not bound by any ſtricture, or a ſtricture the mere conſequence of the previous diſtemper of the gut, it moſt frequently happens, that ſuch diſcharge does not follow the operation, nor is obtainable by any means after it. This I have always regarded as a characteriſtic mark of the true nature of the malady; to which I think, from what I have ſeen of thoſe caſes, I might add another, which is the great difficulty, and in ſome caſes, impoſſibility of keeping the

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reduced inteſtine (after the operation) within the belly. A circumſtance which I have ſeen ſometimes to be abſolutely impoſſible. In the caſes where all the miſchief ariſes from the mere prolapſus and ſtricture, the returned inteſtine becomes immediately pervious, and enjoying its periſtaltic motion keeps its place, and does its office; but where, by previous diſtemper, it is rendered impervious, and deprived of its motion, it cannot execute its office, it remains violently diſtended, and is, with great difficulty, kept within the belly, of which I could give many inſtances. This is, on ſeveral accounts, a matter of importance, both to patient and ſurgeon: with regard to the former, it is not merely the alarm, anxiety, horror, and pain, which neceſſarily attend an operation of ſuch kind, and of ſuch ſerious conſequence, and which, of themſelves, are ſurely enough; but the diſtemper not reſiding in, nor being produced by the ſtricture, the neceſſary ſymptomatic fever, attending ſuch an operation, muſt, in the nature of things, be a circumſtance of additional hazard: and, with regard to the ſurgeon, the difficulty of returning the diſtended inteſtine, and of keeping it in the belly after it has been returned, together with the moſt frequent, and indeed moſt probable event of ſuch caſe, render it very unpleaſant, and what every man would chooſe to avoid. No man can command ſucceſs, but every man would wiſh to be in the way of it.

Congenial Herniæ.

THE difference between theſe and other ruptures, is not a matter of mere anatomical ſpeculation, there are in the former ſeveral particularities which require a practitioner's very ſerious attention, and which an operator ought always to be aware of.

The ſac of a common hernia, every one knows, is formed by the protruſion of the peritoneum, through the natural opening in the tendon of the external, oblique, muſcle of the abdomen. This ſac, at firſt, extends no farther than the groin, but is, by means of its contents, gradually puſhed lower and lower until it gets into the ſcrotum. It always lies anterior to the ſpermatic veſſels, and is enveloped in the cellular membrane, which makes the tunica communis of the ſaid veſſels, forms a cavity perfectly diſtinct from the tunica vaginalis teſtis, and never does, or can contain, the teſticle within it.

In the congenial hernia, the caſe is different; in this, the ſac is not formed by the unnatural protruſion of a portion of the peritoneum, which ought to have remained within the belly, but is made by the uncloſed, vaginal coat of the teſticle; conſequently the ſaid ſac, conſtantly, and neceſſarily, contains within it the teſticle, together with whatever elſe may have paſſed from the abdomen to conſtitute the hernia, and which parts muſt therefore be in contact with the teſticle.

From this particularity reſult ſome circumſtances very neceſſary for a practitioner to be acquainted with. Such are the following.

1ſt. It ſometimes happens that, in infants, a portion of inteſtine ſlips down along with the teſticle, prevents the cloſing of the tunica vaginalis, and thereby conſtitutes the diſeaſe.

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2d. It ſometimes happens, that a portion of gut only comes down, the teſticle never paſſing forth from the abdomen, or remaining in the groin, and falling no lower.

3. In this ſpecies of hernia a ſtricture, or ſtrictures, are ſometimes met with, which are formed merely by the contraction or coarctation of the neck of the vaginal coat or ſac, independant of the abdominal tendon. And,

4th. The parts contained in a common hernia, are liable to contract coheſions with each other, or with the ſac, but in the congenial, both omentum and gut are liable to become connected with the teſticle; which connection will, ſometimes, demand all the judgment, and all the dexterity, of an operator. So that, nice and delicate as the operation of a bubonocele is in the moſt ſimple and common caſe, it becomes much more ſo in the congenial rupture.

CASE XIV.

A BOY, about fourteen years old, was taken into St. Bartholomew's hoſpital for a ſtrumous, lumbal, abſceſs, the matter of which had made its way out in the upper part of the thigh. The diſcharge was great, and the boy ſinking apace.

While he lived, I took notice of a particular appearance on one ſide of the ſcrotum.

The ſpermatic proceſs, at its exit from the belly, was large and full, and plainly contained ſomething which ſhould not be there; immediately below the fulneſs, the proceſs was of little more than its natural ſize, but juſt above the teſticle, it was again conſiderably inlarged, and had the ſame feel as above.

The true ſtate of the caſe remained in doubt till the boy died, at which time both the ſwellings were become manifeſtly leſs than they had been.

I opened his body, and examined the parts with ſome care. The tunica vaginalis teſtis was open to the abdomen, and contained a conſiderable portion of omentum, which portion reached quite down to the teſticle, but did not adhere to it: in the mid-way between the abdominal opening and the teſtis, the hernial ſac was ſo contracted, that the piece of caul, embraced by the contraction, was not extricable by any force, and was preſſed into a firm, hard, ſubſtance; above and below, it was ſoft and expanſile, but void of fat as in all emaciated ſubjects. This hernia, therefore, added to its other particularities, muſt have been incapable of reduction without an operation.

Much about the ſame time, Mr. Reiley, a very ingenious gentleman, who was then under me at St. Bartholomew's, ſhewed me a congenial hernia in a child he had then in diſſection, and in which a portion of inteſtine was begirt in the ſame manner ſo as to be perfectly inextricable; but by diviſion of the part.

Had the child lived, and, at any time, been under a neceſſity of ſubmitting to the operation for a bubonocele, this ſtricture, made by the ſac only, and independant of the abdominal tendon, might have proved a very embarraſſing circumſtance in the operation, and have occaſioned a difficulty which might not have been foreſeen; indeed, upon a view of it, after death, it appeared wonderful, how the inteſtine had executed its office during the child's ſhort life.

CASE XV.

THOMAS Lever, a lad about ſeventeen years old, was ſent to St. Bartholomew's by Mr. Gray, of Colcheſter. His complaint was a rupture which prevented his getting his bread, and which no body in the country had been able to reduce.

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The account he gave of himſelf was as follows: That he had had the rupture as long as he could remember; that it had always been down in the day, and up in the night, until within about ſix months paſt, when he had been thrown over a horſe's head, and bruiſed againſt the pummel of the ſaddle; that the blow gave him ſo great pain, at the time, as to occaſion his ſwooning; that the pain continued ſome hours, and was followed by inflammation and ſwelling, which laſted ſome days; and that, from that time, he had never been able to get his rupture up.

The ſcrotum was large and full, but not at all tenſe; it plainly contained a portion of inteſtine, but there was no ſymptom, nor any appearance of the ſmalleſt degree of ſtricture. Upon attempting reduction, ſome part of the gut paſſed eaſily and freely into the abdomen, but a conſiderable portion of it remained, nor could by any means be made to follow. The teſticle was very diſtinguiſhable below, and ſeemed to be of its natural ſize, and in a natural ſtate, except that from the epidydimis there proceeded a ſmall, hard, body, which body became tight, when the returnable part of the gut went into the belly, and ſeemed to be what hindered the return of the whole. The boy was in perfect health, had no obſtruction to his diſcharge per anum, nor any complaint relative to the inteſtinal canal. A part of the inteſtine was, as I have already ſaid, returnable with the greateſt eaſe; but even this would not remain a moment after the finger which returned it was removed, not even in a ſupine poſture. A complete reduction was found impracticable, the parts were in ſuch a ſtate, that no benefit could be propoſed from evacuation of any kind. To put a truſs on was not only uſeleſs, but miſchievous; and to leave a boy of ſeventeen, who was to get his bread by hard labour, with his ſcrotum loaded with inteſtine, liable, by every exertion, to be increaſed, and by any inflammation to become ſtrangulated, could not be thought of.

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It was therefore, after very mature deliberation, deemed adviſeable, to give him the very probable chance of a cure by an operation.

The very eaſy return of part of the gut into the belly, convinced me, that I muſt not expect to find any fluid in the ſac, and the boy's own account ſatisfied me that the hernia was congenial, and had the tunica vaginalis for its ſac.

I made my inciſion very cautiouſly, and found both theſe circumſtances to be true. In the bag was a ſmall portion of the ileum, and that part of the colon called the cæcum, with its appendicula vermiformis; the former was looſe; but the latter was adherent to the epididymis and teſticle. It took ſome little time to ſeparate theſe connections in ſuch manner, as to injure neither of the parts, but when that was accompliſhed, a very ſmall diviſion of the tendon ſerved to obtain a complete reduction of the whole, and the boy went home well in about ſix weeks.

If this lad had not undergone the operation at the time he did, and inflammation with ſtricture had, at any future time, attacked him, his chance of preſervation would have been but ſmall. The adheſion would have rendered reduction impracticable; but this not being known, would have, at leaſt, occaſioned a waſte of time in unneceſſary, fruitleſs attempts, &c. unleſs it may be ſuppoſed that, after ſuch attack, the inteſtine could be rendered pervious and capable of executing its office by means of purging and ſtimulating medicines (which, in this ſituation of things, I am not much inclined to believe) it is clear, that nothing but the operation could have ſerved him; which operation, (the circumſtance of adheſion not being known) would not, in all probability, have been propoſed one minute too ſoon. Beſides which, when all the parts were got into a ſtate of inflammation, the ſeparation of the coheſion might not, perhaps, have been executed ſo readily.

A caſe, in ſome degree like to this, was in St. Bartholomew's about a year ago under the care of Mr. Younge. It was in a boy about eleven years old. His ſcrotum was much inlarged, and contained ſomething of conſiderable ſize; but there was neither pain, inflammation, tenſion, nor impediment in going to ſtool: notwithſtanding the abſence of all bad ſymptoms, the boy, from the mere ſize of the tumor, was prevented from doing any thing either by way of exerciſe or work.

The operation was performed; the hernia, which was congenial, was both inteſtinal, and omental. I am ſure I am within the truth when I ſay, that there were ten different adheſions of the omentum to the ſac, and two to the teſticle: nor was this all, for the upper part of the ſac was ſo narrow, that it might well have been miſtaken for a ſtricture made by the tendon.

Had the portion of inteſtine, in this caſe, been at any time increaſed, ſo as to have produced a ſtricture, bad ſymptoms would ſoon have come on, and what trouble might not have been expected from parts ſo circumſtanced; not one of which could have been known previouſly to the operation.

A ſudden attack of great pain in the belly, attended with ſickneſs and vomiting, and an incapacity of going to ſtool, imply the probability of a rupture being the cauſe; eſpecially if the perſon ſo attacked either has at that time, or has had one.

Pain in the belly, nauſea, vomiting, and conſtipation, are the general ſymptoms of an obſtruction in ſome part of the inteſtinal canal, and denote, among other things, a perverſion, alteration, and, perhaps, ſometimes, ceſſation of its periſtaltic motion. They do not indeed point out what the particular cauſe may be; but let it be what it may, if it be not ſoon removed, the patient muſt ſink.

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An incarcerated hernia, as it is called, is a diſeaſe cauſed by ſuch ſtricture made on a part of the inteſtinal canal, as not only ſtops its proper motion, and prevents the paſſage of the fæces through it, but alſo hinders the circulation of blood through its veſſels, and very ſoon induces a mortification.

The ſame ſymptoms have ſometimes been produced by an inflammation, or by a ſpaſmodic affection of the ſame part in perſons who, if they have had a hernia, have not had any ſtricture in it, and alſo in perſons who have had no hernia at all.

The great, and material difference between the two caſes is, that in the one the ſymptoms are occaſioned by an affection of a part of the inteſtinal tube thruſt forth from its natural ſituation within the belly, and begirt by a ſtricture; and in the other, they ariſe from an affection of a part of the ſame canal, not begirt, nor thruſt forth, but remaining in its proper place. The general complaints attending each of theſe diſeaſes are ſo alike, and are ſo very difficult to be diſtinguiſhed from each other, that whenever they appear to any violent degree, the places in which herniæ make their appearance, ought always to be inquired into or examined, more eſpecially in women; for although the ſymptoms reſemble each other ſo much, the cauſes of them are materially different, and render one an object of ſurgery, while the other is not at all ſo. Whoever reflects on theſe facts, muſt ſee the propriety, or, indeed, the neceſſity of ſuch inquiry as may determine the true nature of the malady; that a rupture, if it be the cauſe, may be immediately reduced; or that not being the caſe, that the paſſio illiaca may be properly treated.

Theſe circumſtances are ſuch, that the hazard or ſafety of the patient often depends upon them, and therefore require the very ſerious attention of the practitioner: but material as they are, they are not all, there are others which equally demand his regard.*

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* The obſervation of Platner, who ſays, "Nec facilè inveniuntur notæ quæ oſtendunt ex qua occaſione inteſtina laborant," is ſtrictly juſt and true.

A rupture doth not preclude or prevent inflammation, or ſpaſm, or whatever elſe may be the cauſe of miſchief from attacking any other part of the inteſtinal canal not included within the hernial ſac; neither doth it prevent the ſame kind of evils from falling on that part of the inteſtine which is within the ſac, and thereby producing miſchief independant of the rupture, although affecting the part within, or cauſing it: And it alſo ſometimes happens, that perſons afflicted with unreduced, or irreducible ruptures, are rendered incapable of diſcharging their fæces per anum, by cauſes which have not the leaſt connection with, or dependance upon the rupture, or the inteſtine contained within it. Thus it becomes a ſurgeon's care to endeavour to be able, not only to know when a hernia is the cauſe of bad ſymptoms, but alſo when it is not; as his conduct upon theſe different occaſions, muſt be very materially different: for, on the one hand, if the miſchief ariſes from the inteſtine being bound by a ſtricture, nothing but the reduction of it by the hand, or the ſetting it free by the chirurgic operation, can preſerve the patient; but, on the other, if the ſymptoms proceed from another cauſe, even though the portion of inteſtine within the hernia ſhould be the immediate ſeat of the evil, the attempts for reduction will be painful and vain, the operation at beſt uſeleſs, and moſt probably prejudicial; and if the ſeat and cauſe of the miſchief be not within the rupture, both the laſt mentioned attempts become thereby ſtill more improper, more uſeleſs, and more pernicious.

CASE XVI.

AN old gentleman, who had for many years had an irreturnable rupture of the mixed kind, and which I had often ſeen, was ſeized with the ſymptoms of an obſtruction in the inteſtinal canal.

He complained of great pain in his whole belly, but particularly about his navel; he was hot and reſtleſs, and had a frequent inclination to vomit; his pulſe was full, hard, and frequent; and he had gone, contrary to his uſual cuſtom, three days without a ſtool.

I examined his rupture very carefully: the proceſs was large and full, as uſual, but not at all tenſe or painful upon being handled; his belly was much ſwollen and hard, and he could hardly bear the light preſſure of a hand about his navel. Upon mature conſideration of the whole, I was of opinion, that his rupture had no ſhare in his preſent complaints. But as ſome of his ſymptoms reſembled thoſe of a ſtricture, I deſired that more advice might be had. A phyſician and ſurgeon were called: I gave them account of what I had ſeen of the caſe, of my opinion concerning the irreducibility of the rupture, and that it had no ſhare in the preſent complaint; at the ſame time deſiring my colleague to examine for himſelf. We tried at reduction without ſucceſs, but he thought that there was ſtill a ſtricture. The Doctor ordered bleeding, glyſters, and cathartics; the laſt were immediately rejected by vomit, and the glyſter came away without any mixture of fæces. Bleeding was repeated ad deliquium, the tobacco-ſmoak was injected, but all to no purpoſe. The operation was propoſed, but as the caſe did not appear to me to require it, I could not ſecond the motion; it was, however, mentioned to the patient, who would not conſent unleſs I would ſay that I thought it neceſſary, and believed it would

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be ſucceſsful: I could not ſay either, becauſe I believed neither. Every thing elſe that art could ſuggeſt or practiſe, was tried; but, on the ſixth day he died.

As it had been ſuppoſed, that I was wrong and poſitive, I was very glad that his friends choſe to have him opened.

The hernial ſac was thick and hard, and contained a large portion of omentum, a piece of the ileum, and a portion of the colon, all perfectly ſound, free from inflammation or ſtricture, and irreturnable only from quantity. But the inteſtine jejunum, was greatly diſtended, highly inflamed, and, in ſome parts, ſphacelated.

CASE XVII.

JOHN DEWELL, a man about thirty, was brought into St. Bartholomew's, labouring, as was ſuppoſed, under an incarcerated hernia. He had not had a ſtool for three days, although he had taken both purges and glyſters; he vomited almoſt inceſſantly, his pulſe was hard and frequent, but not full, and his countenance beſpoke death.

He had a rupture; it was on the right ſide, was clearly inteſtinal, was ſoft, eaſy, occaſioned no pain upon being handled, and ſeemed to be capable of reduction; but, after many trials, I found that I could not accompliſh that end, notwithſtanding I uſed my utmoſt endeavours; all which gave the man no uneaſineſs, and therefore ſatisfied me, that his ſymptoms did not ariſe from his hernia, which was alſo the patient's own opinion.

Mr. Nourſe coming into the ward, I deſired him to look at the man: He thought that, notwithſtanding the ſeemingly quiet ſtate of the rupture, a ſmall portion of gut might be ſo engaged, as to

cauſe his preſent miſchief, and therefore that the operation was warrantable and proper.

Suppoſing it to be right at all, it could not be done too ſoon, and therefore we ſet about it immediately.

The hernial ſac was formed by the tunica vaginalis; it contained a portion of inteſtine ileum, which had contracted a ſlight coheſion with the teſticle, but was ſo perfectly free from ſtricture, that, when we had looſened it from its connection, we returned it into the belly without dividing the tendon.

I was, indeed, afraid that the man would have died before we could have got him to bed, but he lived till the next day.

A portion of the colon, within the belly, had been in a ſtate of inflammation, was now plainly mortified, and quite black.

CASE XVIII.

I WAS deſired to be preſent at the opening of the body of a gentleman, whoſe diſeaſe and death had occaſioned ſome altercation among thoſe who had attended him.

The account given of him while living was, that to the age of 56, he had enjoyed an uninterrupted ſtate of health.

That, at the age of forty, he diſcovered a rupture, for which he immediately took advice, and put on a truſs: that the truſs not anſwering the purpoſe, he ſoon threw it aſide, and ſuffered his rupture to take its courſe. That it gradually increaſed until it became both viſible and troubleſome. That he then applied to Mr. Sainthill, and Mr. Samuel Sharpe, both of whom endeavoured to reduce it, but in vain; and both adviſed him to wear a ſuſpenſory bag, which he, from that time, had conſtantly done. That, from that time, he had never com-

complained of any uneaſineſs but what was occaſioned by its mere weight. That he very ſeldom miſſed having a ſtool every morning. That, about two years before his death, he began to complain of frequent pain about his bladder and fundament. That theſe pains had affected him near three months before he found any alteration in his fæcal diſcharge, but that, from that time, he had been conſtantly coſtive; and, for the laſt ſix months, had never paſſed a ſtool without a very ſtimulating purge, and even then, with great difficulty. That he had frequently taken advice, had a variety of medicines preſcribed, from none of which he ever reaped any other than the temporary benefit of purging. That, in all this time, no alteration had ever been found, or perceived in his rupture, either regarding its ſize, or any other circumſtance. That, for ſeven or eight weeks before his death, he had worn a very morbid aſpect, was become exceedingly emaciated, and had totally loſt all appetite, his pains alſo being more frequent, and more acute. And that, for the laſt week, he neither had, nor could obtain any, the ſmalleſt degree, of ſtool.

This ſymptom had been, by thoſe who were called to him laſt, attributed to his hernia; and the operation had been much preſſed on one ſide, and objected too on the other.

The hernial ſac was old, large, and thick, its contents, omentum, much hardened, and a conſiderable portion of the inteſtine ileum both perfectly ſound and unaltered, and not bound by the ſmalleſt degree of ſtricture; the ſtomach, liver, ſpleen, and ſmall inteſtines, without blemiſh, but conſiderably diſtended; but about five inches of that part of the colon neareſt to the rectum was ſo contracted, that it was quite impervious, and ſo hardened, that it was like nothing ſo little as a portion of gut.

CASE

CASE XIX.

A MAN, about forty, was brought to St. Bartholomew's with a ſuppoſed incarcerated hernia.

He had a very ſwollen, tight, belly, a frequent pain, and vomiting, and no ſtools; and this had been the caſe for three days, during which time, very proper attempts had been made both for reduction and paſſage.

Neither the ſcrotum, nor the parts about the groin, ſeemed to indicate that the ſeat of the evil was there, although the parts were certainly too tenſe, and a portion of inteſtine was palpably in a hernial ſac. It was Mr. Crane's week, who was out of London, and Mr. Edmund Pitt, who acted for him, deſired me to aſſiſt in the operation; which was thought neceſſary, as no diſcharge per anum could be procured.

The hernial ſac was of the congenial kind, and contained a portion of ſmall inteſtine, which did not ſeem much, if at all, bound by the tendon, but it was ſo ſtrongly and univerſally adherent to the neck of the ſac, that it was impoſſible to think of ſeparating it. A very unpleaſant circumſtance this. All that could be done was, to ſet it free from all poſſible ſtricture, and if ſtools could be procured, to act afterwards as might be neceſſary.

Every means, of purge, glyſter, &c. was uſed, but no paſſage procured; and, on the fourth day from that of his admiſſion, he died.

The piece of inteſtine, in the hernia, was that part of the ileum neareſt to the colon, and which was in good order, only adherent; but higher up toward the jejunum, it was abſolutely impervious for more than three inches in length.

I have

I have ſeen two other caſes ſo nearly ſimilar, that I need not repeat them.

The following caſe has ſome circumſtances which may poſſibly be worth the reader's notice.

CASE XIX.

THOMAS MARSHALL, aged fifty-four, was brought into St. Bartholomew's hoſpital, on the 25th of May, 1764, with a large, painful, tumefied, ſcrotum. The account which he gave of himſelf was,

That, in his childhood, he had been afflicted with a gut-rupture, for which he had worn a truſs until the rupture was ſuppoſed to have been cured. That he had always been a regular, temperate, and hard-working man. That, on the 23d of April, he felt, while he was at work, a ſudden, violent, attack of a colic-pain, which, in a few hours, was followed by a ſlight purging. That, his pain not ceaſing, he took ſome tincture of rhubarb, from which he had three or four more motions. That, in the evening of the ſecond day, he found a conſiderable ſwelling in his groin and ſcrotum, on the ſide where his rupture had formerly been. That, on the third, he went to work again, although he had much pain in his belly, and a purgeing. That, on the fourth, he took ſomething of the cordial kind, given him by a neighbour, and ſtaid at home all that day, and the next, during which he was pretty eaſy, but had ſeveral looſe ſtools. That, on the ſeventh day from that of his being firſt taken ill, he went to work again, but was again attacked with ſevere pain, and frequent vomiting, immediately after which he found the ſwelling in his ſcrotum conſiderably increaſed. That, from this time, he was ſo much,

much, and ſo conſtantly uneaſy, as to be obliged to keep his bed, it being the only place in which he could put himſelf in a tolerably eaſy poſture. And that during the whole time, from the 29th of April to the 25th of May, he had very ſeldom had leſs than two ſtools every day, often more.

The man was much emaciated, had a quick pulſe, a hot ſkin, and conſiderable thirſt; the ſcrotum was now very much on the ſtretch, began to put on a purple kind of colour, and had, at the ſame time, a watry load in its cellular membrane, but palpably contained a large quantity of fluid in the tunica vaginalis teſtis. The whole tumor had a pyriform kind of figure; the ſpermatic proceſs was hard and large, and clearly contained ſomething which paſſed into it from the belly, but which ſomething did not deſcend below the upper part of the ſcrotum, while the lower part of the ſame was ſo diſtended, as to be half way down the thigh, and was palpably filled by a fluid.

The ſtate of the parts were ſuch, that it became neceſſary to do ſomething, leſt they ſhould mortify. I made, with all poſſible caution, an inciſion through the loaded integuments into the cavity of the tunica vaginalis, and gave diſcharge to near a quart of the moſt offenſive brown liquor: upon the diſcharge of this, the lower part all ſubſided; but the upper remained the ſame. I then, with a crooked probe-pointed knife, divided the whole from below upward, and found that the bag containing the fluid was a congenial hernial ſac, whoſe internal ſurface had all the appearance of being mortified, and that the body, in its upper part, was a portion of inteſtine. This portion had, on its ſurface, ſeveral black, and truly ſphacelated ſpots, ſome larger, and ſome ſmaller; but the gut was ſtill intire, and appeared moderately diſtended with wind. I paſſed my finger through the opening in the abdominal muſcle, and could not find that it made the ſmalleſt degree of ſtricture, but found, at the ſame time, that the

inteſtine

inteſtine was ſo firmly adherent to the ſac, that, in its preſent ſtate, it was equally impoſſible to return, as to detach it. That night the man had two good ſtools, and next morning, when I expected to have found him dead, he was conſiderably better.

I again examined the parts, to ſee whether the inteſtine could be returned, but again found that, had it been adviſeable, it was impracticable. The third day he was ſtill better, and had a figured ſtool.

As it appeared highly improbable, that the mortified ſpots on the gut ſhould caſt off without leaving a breach in the inteſtine; I thought, that the beſt that could happen, would be a diſcharge of fæces through the wound, at leaſt for a time; but I was miſtaken, for at the end of five days, during which he had taken the bark freely, all the eſchars caſt off, by a florid, good, incarnation, and leaving no breach at all, the man became eaſy, chearful, and began to take nouriſhment.

From this time, the portion of inteſtine in the groin ſeemed daily to retire upward, and become leſs viſible, and I began to entertain hope that we ſhould ſee a very fortunate termination of this very miſerable caſe. For the ſpace of ten days he took the bark freely, and ſeemed every day better and better; but, at the end of that time, he became again feveriſh and languid; inſtead of his uſual freedom of ſtool, none could be procured, and he died.

The prolapſed gut had retired ſo much, that, had the man lived, I make no doubt that it would have been included within the ſore, and been firmly healed over: the places, which had been ſphacelated, were quite healed; but about four inches of that part of the inteſtine, which was juſt within the belly, was ſo contracted as to become quite impervious, and perfectly ſcirrhous.

The intelligent will, I make no doubt, remark on ſome parts of this caſe, and therefore I ſhall trouble him with one only, which is,

that ſphacelated ſpots on the ſurface of an inteſtine are not always, and abſolutely, a prohibition againſt returning ſuch inteſtine into the belly.

CASE XXI.

I WAS deſired to meet Dr. De Valangin, Mr. Godman, and Mr. Boigue, in the caſe of a hernia with ſtricture.

The patient was a man about the middle of life, his rupture was, I think, on his left ſide, and when I ſaw him he had not had a ſtool for ſeveral days, though the uſual means had been uſed. Upon examining the parts, they made as bad an appearance as poſſible: they had been tumid, full, and inflamed, they were now ſunk, flaccid, and completely mortified, notwithſtanding which I could not ſay, that the man appeared ſo near to death, as ſuch an appearance would indicate, but, at the ſame time, ſo materially ill, that I could not ſuppoſe that he could receive any benefit from the art of ſurgery.

The true intent of the operation, that of ſetting the gut free from the ſtricture, was of no conſideration here; the ſtricture had done all its miſchief; if the man was to live, the mortified parts muſt caſt off; and if he was to die, I thought it was better that we ſhould not even appear to have a ſhare in his death, by an operation, which I thought could not be ſerviceable, and might be miſconſtrued.

This was truly my opinion, and I gave it as ſuch. But, overcome by the importunity of the patient's wife, and to avoid ſeeming to be either careleſs or brutal, I was prevailed on to divide the parts. The ſcrotum, integuments in the groin, and hernial ſac, were completely and truly mortified; the portion of inteſtine, which certainly was not leſs than three inches, was in the ſame ſtate, ſunk, empty, (having burſt)

burſt) and as black as a coal; the offence was terrible, but the man ſuffered no pain, as the parts were totally void of ſenſation.

I contented myſelf with merely dividing the ſcrotum and hernial ſac, and left the rotten inteſtine as it was, lying in the groin on the outſide of the ring, concluding that a very ſhort ſpace of time would determine the poor man's fate, and that not favourably. The gentlemen whom I had met, continued to attend, and to take care of him: the mortified parts caſt off, he diſcharged his fæces through his wound for ſome time, but that, in no great length of time, ceaſed, and within the ſpace of a month, I ſaw him in very good health, diſcharging all his fæces per anum, and having only a ſmall, clean, and healing ſore, where his wound had been. How the fæces paſſed from the ileum to the colon, after the mortified parts were thrown off, I am, conſidering the ſize of the portion of gut, really at a loſs to account for; but very ſure I am, that if the advice given by all writers, in theſe caſes, to cut off the piece of mortified inteſtine, and faſten the ſound part to the upper part of the wound, had been followed, the man would have paſſed the remainder of his life in a much more unpleaſant manner.

Hernia veſicæ urinariæ.

A Hernia formed by a protruſion of a portion of the urinary bladder, through the opening in the abdominal muſcle into the groin or ſcrotum, is a diſeaſe, ſometimes, but not very frequently, met with.

It has been taken notice of by many writers of character, and has been inaccurately deſcribed by Monſ. Verdier, and Mr. Samuel Sharpe.

Whoever is acquainted with the ſtructure and diſpoſition of the peritoneum, without which knowledge he cannot underſtand a hernia at all, knows that the bladder is only covered in part by that membrane, and that its inferior and lateral parts lie on the outſide of it, in the tela cellulosa.

That portion of the bladder, which is liable to this protruſion, is not covered by the peritoneum, conſequently when it is thruſt forth it does not carry with it any part of the ſaid membrane; and, therefore, cannot have, what is called, a hernial ſac; in which it differs from every other kind of hernia.

The two following are the only caſes I ever met with.

C A S E XXII.

A Poor fellow, who worked with a farmer at Iſlington, came to St. Bartholomew's with a large, troubleſome, ſwelling in his ſcrotum. The tumor was large, tenſe, of a pyriform figure, palpably contained a fluid, gave no pain but from its weight when full, and had every mark of a hydrocele, except that the teſticle was perfectly diſtinguiſhable at its bottom.

While I was heſitating concerning this circumſtance, the man ſaid, Sir, I can get rid of it all by piſſing, but it fills again in a few hours, eſpecially if I drink.

Upon

Upon my ſeeming to diſbelieve what he ſaid, he took up his ſcrotum, and ſqueezing it together with ſome violence, diſcharged the whole by the urethra.

CASE XXIII.

A BOY, about ſix years old, was ſeized with an acute pain about the region of the pubes; it laſted near an hour and half, and ſuddenly ceaſing, he became perfectly eaſy. During the time his pain laſted he could not diſcharge a drop of water, tho' he endeavoured ſo to do, but, as it ceaſed he piſſed freely. In a few days after, a ſmall tumour was diſcovered about the ſize of a pea, in the ſpermatic proceſs, juſt below the groin: it gave the child no pain, and therefore no notice was taken of it. By ſlow degrees it deſcended lower and lower, and, as it deſcended, it ſeemed to increaſe in ſize: when it had got to the upper part of the ſcrotum, it was obſerved to be conſiderably inlarged; and the boy now found himſelf more frequently urged to make water; but without pain or difficulty. He was examined by a practitioner or two in his neighbourhood, who, not knowing what to make of it, adviſed the letting it alone. Within the ſpace of five years it got down to the bottom of the ſcrotum, and when it was there it was obſerved to increaſe much faſter than it had done before. The boy was at a conſiderable diſtance from London, and it ill-ſuited his friends to ſend him thither, ſo that another year paſſed before he was ſent up; which was done at the age of thirteen, theſwelling being now troubleſome upon any motion.

Some, who firſt ſaw him, deemed it a ſcirrhous teſticle, and adviſed caſtration, to which the friends of the boy would not ſubmit.

From the moſt careful examination I could make, I could not think that it was formed by the teſticle; but, on the other hand, I could not find any teſticle on that ſide.

The

The ſwelling was perfectly equal in its ſurface, was indolent, had a ſtony, incompreſſible kind of hardneſs, was troubleſome from its weight, but never occaſioned pain in the back or loins: it had all the appearance of being dependant from the ſpermatic proceſs; which proceſs, though it had neither the feel, nor the appearance of being diſeaſed, yet was larger than it ſhould be, and than that on the other ſide. The perfect equality of the tumor, its being perfectly free from pain, even when preſſed hard, and its extreme incompreſſibility, led me to believe it was not the teſticle; but this was merely negative information. The trouble it now gave the boy, and its diſpoſition to increaſe, ſeemed to authoriſe its removal, and the ſtate both of the part, and of the child, were no prohibitions. I therefore propoſed and undertook it. I made an inciſion through the ſkin and cellular membrane, the whole length of the proceſs and ſcrotum, by means of which I diſcovered a firm, white, membranous bag, or cyſt, connected looſely with the cellular membrane in the ſame manner as a hernial ſac. I diſſected all the anterior part of this bag, quite clean, and found that, as I traced it upward, it became narrower, and ſeemed to proceed from the upper part of the groin. This determined me to try if I could not clear it from its poſterior connection; in doing which I diſcovered a teſticle which lay immediately behind the body forming the tumor, and was ſmall, flat, and compreſſed.

The diſſection of this, and of the ſpermatic chord, from the bag and from its neck, which I was obliged to do in order to preſerve the teſticle, took up ſome time, and gave me ſome trouble; but, when I had finiſhed it, I found that the cyſt was dependant from, and continuous with, a membranous duct about the breadth of the largeſt wheat-ſtraw, or, what it was more like to, a human ureter, which paſſed out from the abdomen through the opening in the muſcle.

When I had perfectly cleared this duct from all connection with the ſpermatic chord, I cut it off immediately above the tumor, and upon

upon the diviſion, there iſſued forth about four ounces of a clear liquor, and the mouth of the cyſt, expanding it ſelf, diſcloſed a ſtone, exactly reſembling what is found in the human bladder.

As there was not the leaſt appearance of fluid, either in the bag or in its neck, before the diviſion, its immediate effuſion, and the appearance of the ſtone, induced me to believe, that the caſe was a hernia cyſtica. In order to be certain, I ſtaid ſome time; and when I thought that ſome quantity of urine might have paſſed from the kidnies, I deſired the boy to try to make water: he did ſo, and a large ſtream of urine flowing through the wound, inſtead of the urethra, put the matter out of all doubt.

He was dreſſed ſuperficially, had no one bad ſymptom, though a portion of the bladder was totally removed: his urine came through the wound in his groin for about a fortnight; but as that wound healed, it reſumed its natural courſe, and the patient has remained free from complaint ever ſince, except that the natural ſize of his bladder being leſſened by the extirpation of a part, he is obliged to diſcharge his urine rather more frequently.

CASE XXIV.

An Ovarian Hernia.

A Healthy young woman about 23, was taken into St. Bartholomew's hoſpital on account of two ſmall ſwellings, one in each groin, which for ſome months had been ſo painful, that ſhe could not do her work as a ſervant.

The tumors were perfectly free from inflammation, were ſoft, unequal in their ſurface, very moveable, and lay juſt on the outſide of the tendinous opening in each of the oblique muſcles, through which they ſeemed to have paſſed.

The

The woman was in full health, large breaſted, ſtout, and menſtruated regularly, had no obſtruction to the diſcharge per anum, nor any complaint but what aroſe from the uneaſineſs theſe tumors gave her, when ſhe ſtooped or moved ſo as to preſs them.

She was the patient of Mr. Nourſe. He let her blood and purged her, and took all poſſible pains to return the parts through the openings through which they had clearly paſſed out.

He found all his attempts fruitleſs, as did Mr. Sainthill and myſelf, and the woman being incapacitated from getting her bread, and deſirous to ſubmit to any thing for relief, it was agreed to remove them.

The ſkin and membrana adipoſa being divided, a fine membranous bag came into view, in which was a body ſo exactly reſembling a human ovarium, that it was impoſſible to take it for any thing elſe; a ligature was made on it, cloſe to the tendon, and it was cut off. The ſame operation was done on the other ſide, and the appearance, both at the time of operating and in the examination of the parts removed, were exactly the ſame.

She has enjoyed good health ever ſince, but is become thinner and more apparently muſcular; her breaſts, which were large, are gone; nor has ſhe ever menſtruated ſince the operation, which is now ſome years.

OBSER-

OBSERVATIONS

ON THE

MORTIFICATION

OF THE

TOES AND FEET.

THE powers and virtues of the Peruvian bark are known to almoſt every practitioner in phyſick and ſurgery. Among the many caſes in which its merit is particularly and juſtly celebrated, are the diſtempers called gangrene and mortification; its general power of ſtopping the one, and reſiſting the other, have made no inconſiderable addition to the ſucceſs of the chirurgic art; but ſtill there is a particular ſpecies even of theſe, in which this noble medicine moſt frequently fails: I mean that particular kind, which, beginning at the extremity of one or more of the ſmall toes, does, in more or leſs time, paſs on to the foot

and ancle, and ſometimes to a part of the leg, and in ſpite of all the aid of phyſick and ſurgery, moſt commonly deſtroys the patient.

It is very unlike to the mortification from inflammation, to that from external cold, from ligature, or bandage, or to that which proceeds from any known and viſible cauſe, and this as well in its attack as in its proceſs. In ſome few inſtances it makes its appearance with little or no pain; but, in by much the majority of theſe caſes, the patients feel great uneaſineſs through the whole foot and joint of the ancle, particularly in the night, even before theſe parts ſhow any mark of diſtemper, or before there is any other than a ſmall diſcoloured ſpot on the end of one of the little toes.

It generally makes its firſt appearance on the inſide, or at the extremity, of one of the ſmaller toes; by a ſmall, black, or bluiſh ſpot: from this ſpot the cuticle is always found to be detached, and the ſkin under it to be of a dark red colour.

If the patient has lately cut his nails, or corn, it is moſt frequently, though very unjuſtly, ſet to the account of ſuch operation.

Its progreſs in different ſubjects, and under different circumſtances, is different; in ſome it is ſlow and long in paſſing from toe to toe, and from thence to the foot and ancle; in others its progreſs is rapid, and horridly painful: it generally begins on the inſide of each ſmall toe, before it is viſible either on its under or upper part; and when it makes its attack on the foot, the upper part of it firſt ſhows its diſtempered ſtate, by tumefaction, change of colour, and ſometimes by veſication, but wherever it is, one of the firſt marks of it is a ſeparation or detachment of the cuticle.

Each ſex is liable to it; but for one female, in whom I have met with it, I think I may ſay, that I have ſeen it in, at leaſt, twenty males. I think alſo that, I have much more often found it in the rich and voluptuous, than in the labouring poor; more often in great

eaters,

eaters, than free drinkers. It frequently happens to perſons advanced in life, but is, by no means, peculiar to old age. It is not, in general, preceded or accompanied by apparent diſtemperature either of the part, or of the habit. I do not know any particular kind of conſtitution which is more liable to it than another; but, as far as my obſervation goes, I think that I have moſt frequently obſerved it to attack thoſe who have been ſubject to flying, uncertain, pains in their feet, which they have called gouty, and but ſeldom in thoſe who have been accuſtomed to have the gout regularly and fairly. It has, by ſome, been ſuppoſed to ariſe from an oſſification of veſſels; but for this opinion I never could find any foundation but mere conjecture.

The common method of treating this diſtemper is, by ſpirituous fomentations, cataplaſms actually and potentially warm, by dreſſings of the digeſtive kind, as they are called, animated with warm, pungent, oils and balſams, &c. and, internally, by the Peruvian bark.

I wiſh I could ſay that this, which, with little alteration, has been the general practice, had been moſt frequently, or even often ſucceſsful; but I am, from long, and repeated experience, obliged to ſay, that it has not.

I am ſenſible that many of my readers will be ſurprized at my affirming, that the Peruvian bark will not ſtop a mortification, a diſtemper in which, for ſome years, it has been regarded as ſpecific; but I muſt beg not to be miſunderſtood: I mean to confine my obſervation and my objection to this particular ſpecies of mortification, which I regard as being ſui generis: and under this reſtriction I muſt repeat, that I have ſeldom, if ever, ſeen the bark ſucceſsful: in all other caſes, wherein it is uſed or recommended, no man has a higher opinion of it; but in this I cannot give it a praiſe which it does not deſerve.

I believe I may venture to ſay, that I have tried it as fairly, as fully, and as variouſly, as any man has, or can: I have given it in the largeſt quantity, at the ſhorteſt intervals, and for the longeſt poſſible ſpace; that is, as long as the patient's life would permit: I have given it by itſelf in decoction, extract, and ſubſtance; I have combined all theſe together; I have joined it with nitre, ſal abſynth. with ſnake-root, with confect. cardiac. with volatile ſalts, and with muſk, as different circumſtances ſeemed to require, or admit: I have uſed it as fomentation, as poultice, as dreſſing; I have aſſiſted it with every thing which has been uſually thought capable of procuring, or aſſiſting digeſtion; ſtill the diſtemper has continued its courſe, perhaps a little more ſlowly, but ſtill it has ended in death.

I am ſorry to rob one of our great medicines of any part of its ſuppoſed merit, but, as on the one hand, its claim, in this inſtance, is unjuſt, and as, on the other, I hope to add as much to the character of an other, the res medica will be no ſufferer.

Some time ago, I had a patient labouring under this complaint, who, from antipathy, obſtinacy, or ſome other cauſe, could not be prevailed on to take bark in any form whatever. I made uſe of every argument, but to no purpoſe: fomentation, poultice, and the uſual dreſſings, were applied in the uſual manner; the diſeaſe advanced ſome days more, ſome days leſs, and, at the end of a fortnight, the ſmall toes were all completely mortified, the great one become blackiſh, the foot much ſwollen, altered in colour, and the diſeaſe ſeeming to advance with ſuch haſty ſtrides, that I ſuppoſed a very few days would determine the event. The pain in the foot and ancle was ſo great, and ſo continual, as totally to deprive the patient of ſleep. On this account, and merely to procure ſome remiſſion, I gave two grains of opium at night, which not having the deſired effect, I repeated it in the morning. Finding, during the following

day,

day, ſome advantage, I repeated the ſame doſe night and morning, for three days; at the end of which time the patient became quite eaſy, and the appearances on the foot and ancle were viſibly more favourable. Encouraged by this, I increaſed the quantity of the medicine, giving one grain every three or four hours, taking care to watch its narcotic effect, and to keep the belly empty by glyſters. In nine days from the firſt adminiſtration of the opium, all the tumefaction of the foot and ancle totally ſubſided, the ſkin recovered its natural colour, and all the mortified parts plainly began to ſeparate; in another week they were all looſe, and caſting off, the matter was good, and the incarnation florid. During the whole of this time, I continued the uſe of the opium, varying its quantity, as circumſtances required, but never gave leſs than three or four grains in twenty-four hours.

When the ſloughs were all caſt off, the bones ſeparated, and I had only a clean ſore to dreſs and heal, I gradually left off the medicine.

I am very willing to acknowledge, that however well-pleaſed I might be with the event of this caſe, yet I really regarded it as accidental; ſo much ſo, that having very ſoon after another opportunity, I did not care to truſt to opium alone, but joined the bark with it. The event was equally fortunate. But although I had joined the cortex with the extractum thebaicum, and did therefore attribute the ſucceſs to their united powers, yet the effect was ſo very unlike to what I had ever ſeen from the bark without opium, that I could not avoid ſeriouſly, and often reflecting on it, and determining to uſe it by itſelf, whenever another opportunity ſhould offer. I did ſo, and ſucceeded in the ſame happy manner, though under the very diſagreeable circumſtances of ſeventy years of age, a broken, diſtempered conſtitution, and the diſeaſe making a haſty progreſs.

To relate caſes which are nearly, or at leaſt materially ſimilar, is of no uſe: I ſhall therefore only ſay, that every opportunity, which

I have

I have had ſince of making the experiment, has ſtill more and more convinced me of the great value and utility of this medicine, and of its power of reſcuing from deſtruction, perſons under this affliction.

I cannot ſay that it has never failed me, it certainly has; but then it has been under ſuch circumſtances, as I think would fairly account for the failure.

I ſhould be exceedingly ſorry to be miſunderſtood; I ſhould be ſtill more ſo to miſlead any body, and therefore I beg it may be noticed, that I do not propoſe the extractum thebaicum, in this caſe, as an univerſal, infallible ſpecific; I know, from experience, that it is not; but as I alſo know, from repeated experience, that it will, under proper management and direction, do more than any, or than all other medicines; and that I have, by means of it, ſaved ſome lives, which, I am very ſure, would, under the common, and moſt approved method of treatment, without it, have been loſt, I could not anſwer to myſelf the not communicating what I had obſerved.

If this was an experiment, in which the life or limb, or health of the patient, was in any degree endangered, or by which the perſon, on whom it may be tried, could, in any degree, be injured, I ſhould have withheld what I now publiſh, until a greater length of time, and more experience, had rendered it ſtill more abſolutely certain; and I ſhould have thought myſelf ſtrictly vindicable in ſo doing: but as this is a medicine, whoſe general effects are well known, and which is, at the ſame time, ſo capable of direction and management, that it is almoſt impoſſible for any perſon who deſerves to be truſted with medicine at all, to do any material harm with it, I thought it would be wrong and unjuſt to conceal what had occurred to me, leſt I might thereby deprive the afflicted of an aſſiſtance which, I verily believe, is not to be obtained from any other quarter.

In

In ſhort, from what I have ſeen and done, I am perfectly convinced that, by its means, and by its means ſolely, I have ſaved lives which, without it, muſt have been loſt.

If it preſerves a few of thoſe, who are ſo unfortunate to labour under this naſty, painful, lingering, and deſtructive diſorder, to which we are all liable, and which has hitherto, moſt frequently, foiled all attempts of art, I ſhall be ſincerely glad to have contributed to ſo good an end: if it ſhould prove in other hands as ſucceſsful as it has with me, I ſhall be ſtill more ſo; but, on the other hand, if, after ſeveral times giving me reaſon to believe, and hope that it would prove an inſtrument for the preſervation of many, it ſhould, upon more repeated trial, be found to fail, I ſhall be ſorry for the event, but ſhall ſtill think, that I did right in communicating what I had ſeen, and thereby endeavouring to be uſeful to mankind.

Hoc opus, hoc ſtudium, parvi properemus et ampli,
Si patriæ volumus, ſi nobis vivere cari.

If I am right in my conjecture concerning this hazardous and deſtructive malady; and if the method which I have propoſed and practiſed, ſhould prove as ſucceſsful in the hands of others as it has in mine, I cannot help thinking, that the external or chirurgic treatment of the diſorder might be amended; that is, might be made to coincide more than it does at preſent with ſuch ſoothing kind of plan.

Since I have had reaſon to embrace this opinion, and to act in conformity to it, I have found more advantage from frequently ſoaking the foot and ancle in warm milk, than from any ſpirituous, or aromatic fomentations whatever; that is, I have found the one more capable of alleviating the pain, which ſuch patients almoſt always feel,

feel, than the other; which circumſtance I regard as a very material one. Pain is always an evil, but, in this particular caſe, I look upon it as being ſingularly ſo. Whatever heats, irritates, ſtimulates, or gives uneaſineſs, appears to me always to increaſe the diſorder, and to add to the rapidity of its progreſs; and, on the contrary, I have always found, that whatever tended merely to calm, to appeaſe, and to relax, at leaſt retarded the miſchief if it did no more.

The whole plan of the chirurgic treatment of this diſeaſe is founded on a general idea of warming, invigorating, ſtimulating, and reſiſting putrefaction, and the means generally made uſe of are very proper for ſuch purpoſe: but I muſt own that I think the purpoſe, or intention, to be improper.

Upon this principle, the old theriaca Londinenſis, and the preſent cataplaſma e Cymino, have been, and ſtill are, ſo freely uſed on this occaſion. A compoſition of this kind, if it does anything, muſt heat and ſtimulate, and it is by heating and ſtimulating the ſkin, to which it is applied, that it ſo frequently does that miſchief which I am confident it often does, tho' ſuch miſchief is ſet to the account of the nature of the diſorder. Caſes exactly ſimilar, in all circumſtances, are not to be met with every day, but I am from experience convinced, that of two, as nearly ſimilar as may be, in point of pain, if the one be treated in the uſual manner, with a warm, ſtimulating, cataplaſm, and the other only with a poultice made of the fine farina ſeminis lini, in boiling milk or water mixed with ung. ſambuc. or freſh butter, that the pain, and the progreſs of the diſtemper, will be much greater and quicker in the former than in the latter.

When the black, or mortified ſpot has fairly made its appearance on one or more of the toes, it is the general practice to ſcarify or cut into ſuch altered part with the point of a knife or lancet. If this inciſion be made merely to learn whether the part be mortified or not,

not, it is altogether unneceſſary, the detachment of the cuticle, and the colour of the ſkin, render that a decided point: if it be not made quite through the eſchar, it can ſerve no purpoſe at all; if it be made quite thro', as there is no confined fluid to give diſcharge to, it can only ſerve to convey ſuch medicines as may be applied for the purpoſe of procuring digeſtion to parts capable of feeling their influence, and on this account they are ſuppoſed to be beneficial, and therefore right.

When the upper part of the foot begins to part with its cuticle and to change colour, it is a practice with many to ſcarify immediately; here, as in the preceding inſtance, if the ſcarifications be too ſuperficial, they muſt be uſeleſs, if they be ſo deep, as to cauſe a ſlight hæmorrhage, and to reach the parts which have not yet loſt their ſenſibility, they muſt do what indeed they are generally intended to do, that is, give the medicines, which ſhall be applied, an opportunity of acting on ſuch parts.

The medicines moſt frequently made uſe of for this purpoſe are, like the theriaca, choſen for this ſuppoſed activity; and conſiſt of the warm, pungent, oils and balſams, whoſe action muſt neceſſarily be to ſtimulate and irritate: from theſe qualities they moſt frequently excite pain, which, according to my idea of the diſeaſe, is diametrically oppoſite to the proper curative intention; and this I am convinced of from repeated experience.

The dreſſings cannot conſiſt of materials which are too ſoft and lenient; nor are any ſcarifications neceſſary for their application. But I would go farther and ſay, that ſcarifications are not only uſeleſs, but, in my opinion, prejudicial, by exciting pain, the great, and chiefly to be dreaded evil, in this complaint. The pultice ſhould be alſo ſoft, ſmooth, and unirritating; its intention ſhould be merely to ſoften and relax; it ſhould comprehend the whole foot, ancle, and part of the

leg; and ſhould always be ſo moiſt, or greaſy as not to be likely to become at all dry or hard, between one dreſſing and another.

I will trouble the reader with only one remark more.

When the toes are, to all appearance, perfectly mortified, and ſeem ſo looſe as to be capable of being eaſily taken away, it is, in general, thought right to remove them. However rotten and looſe they may ſeem to be, or really are, yet while they hold on, they hold by ſomething which is ſtill endued with ſenſation, as may always be known, if they be bent back or twiſted with any degree of violence.

I will not enter into a diſpute about the ſenſibility or inſenſibility of ligaments, nor undertake to determine whether they be ligaments or any other kind of parts which ſtill maintain the connection of the toes with their own reſpective joints, or with the metatarſal bones; it is ſufficient for me to know, and to inform the young practitioner, that however looſe they may ſeem, yet if they be violently twiſted off, or the parts, by which they hang, be divided, a very conſiderable degree of pain will moſt commonly attend ſuch operation, which therefore had much better be avoided; and that I have ſeen this very pain, thus produced, bring on freſh miſchief, and that of the gangrenous kind.

If the patient does well, theſe parts will certainly drop off, if he does not, no good can ariſe from removing them.

FINIS.

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